

# Railway Age

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## *The Unions and Group Insurance*

ONE or two labor union leaders have denounced the railroads for providing group insurance for their employees and have accused them of being actuated by no other desire than that of weaning the men away from their union loyalty. In other words, employers are not to provide anything to ameliorate the condition of their employees unless it is first demanded of them by the union leaders. To us it seems that the leaders who have raised this objection are putting themselves to a great deal of trouble to find something to argue about. The activities of the railroads in providing pensions, group insurance and other benefits for the men covers a field which the unions themselves have not entered to any extent. In no sense then are the railroads' activities in this direction in any way competitive to union activities. They simply provide benefits over and above those which may be secured by union membership. Anyhow, if the union leaders do not like them, would not their position be much more substantial if they should take steps to have the unions themselves provide these benefits, instead of restricting themselves to mere denunciation? This was the question we raised some time ago following an outburst by the head of the firemen's union. Meantime, a Canadian union which competes in the Dominion with the clerks' organization and which has some 13,000 members, has made arrangements for group insurance for all its members. This is something specific. When and if the time comes that the union leaders are able to offer something as good or better in the way of pensions and group insurance than anything which the railroads provide, then they might have an argument with which they can honestly approach their membership. Thus far their position consists in asking their followers to forego without compensation valuable privileges simply because the benefactor is obnoxious to them. The logic of their position is about as advanced as that of the Socialist who tried to have his town refuse an offer of a Carnegie library long after Andrew Carnegie had died simply because, he said, Mr. Carnegie had been unfair to labor.

## *Is There Any Better Plan?*

THERE is no more remarkable story in all history than the development of railroad transportation throughout the world in the span of a single century and which has its most astounding example in North America. It goes without saying that the men who had a part in its beginning little dreamed of the wonderful structure for which they were laying the foundation. But if they could see what it is today it is doubtful if they would be amazed so much by its size as by its extraordinary character. Insofar as physical makeup and service is concerned, it represents a unified whole, but, as regards ownership and operation, it comprises a large number of independent entities. The fact that the standards of construction, operating practices, and service are virtually universal

cannot be ascribed to public regulation, for great progress had been made in that direction long before the Interstate Commerce Commission or any of the state commissions were created. It can be ascribed only in part to the influence of the American Railway Association, because progress in the development of common practices has covered many fields beyond its past or even present scope. To the large number of independent organizations of railway officers much of the credit must be given for the fact that the railways in northeastern Canada are operated in the same way, over substantially the same character of track, and with the same kinds of cars and locomotives as are used in southern California. The influence of these organizations has extended over a great many years. Thus the Master Mechanics' and the Master Carbuilders' associations, now a part of the American Railway Association, are 58 years old; the Roadmasters' Association, 43 years; the Bridge and Building Association, 35 years, and the Traveling Engineers, 33 years. The remarkable feature of these organizations is that they are associations of individuals rather than representatives of corporations, and, even in the case of those associations which have been absorbed by the A. R. A., the transactions take on largely the form of individual action. Is it possible to conceive of any form of control of our railway transportation system which would offer more opportunity for the exercise of individual initiative and also afford better means for the development of common standards than that of private ownership in individual units, but knit together as a common whole by these hard-working associations?

## *Reducing Renewal of Ties*

IN a report presented at the convention of the American Railway Engineering Association at Chicago last March, the Committee on Wood Preservation included data as to the number of cross ties renewed per mile of all tracks on several roads for 1923. These figures showed the renewals for the Atchison, Topeka & Santa Fe to be 128, for the Delaware, Lackawanna & Western, 102, and for the Lehigh Valley, 91. These figures stand out in marked contrast with those of many other roads which are renewing as many as 300 ties per mile of track. It is natural, therefore, that the managements of those roads whose figures are high should ask their engineering officers to explain the reason for this variation. In some instances they have gone further and arbitrarily curtailed expenditures for this purpose. Unless this is done with a full knowledge of all of the facts in the case such action is dangerous in the extreme and will lead only to disaster. The tie is the foundation of the track structure and an adequate number of ties of proper quality is essential to safety of travel. To reduce renewals below the point where safety is assured is only courting trouble and merely postponing rather than reducing expenditures. A study of the practices of those roads which are showing the lowest tie renewals reveals the fact that the

are due primarily to one influence—timber preservation—supplemented by care in the selection of the ties purchased for treatment. The Santa Fe, which has shown a low and steadily decreasing rate of renewals for the longest period, has been a pioneer in the consistent treatment of ties in this country. In addition it has been most exacting in the selection of the timber and the manufacture of its ties as well as in their care before and after insertion in the track. As a result, its annual requirements have declined from 301 ties per mile of track in 1908 to 115 in 1924, and its total requirements from 3,666,798 to maintain 12,169 miles of track in 1908 to 2,046,054 ties for 17,709 miles of track in 1924. The Lehigh Valley and the Lackawanna are likewise benefiting from their consistent practice of treating ties for a sufficient period to enable the results to be evidenced. These roads are now securing a return from the investment which they have made in past years by the treatment of their ties. Those roads which have not yet made this investment or have not treated their ties for a sufficiently long time cannot expect their renewals to be reduced to the extent of the other roads and any attempt to curtail renewals arbitrarily on the basis of the record of roads like the Santa Fe deprives their tracks of the strength which is needed to handle traffic safely. The treatment of ties has justified itself to such an extent that argument regarding its merits is no longer necessary. The results of treatment cannot be secured, however, without strict adherence to established practices which make for long tie life. This includes not only preservative treatment, but the purchase of sound ties, adequate protection against mechanical deterioration and above all, the exercise of supervision over the tie from the time it is purchased until it is removed. There is no short cut in cross tie economies.

## "What Do You Read?"

THE *Railway Age* has a few times published editorials under the above heading to emphasize to its readers that there is no subject of especial interest to railway men regarding which information and discussions are not constantly appearing in its editorial pages.

A very able and progressive railway president recently wrote us that he had sent a letter to all his heads of departments "instructing that they make it their duty not only to read themselves but to see that their subordinates read and study news items and editorials as well as all advertisements appearing in your extraordinary paper. I might go further than this," he added, "and say that I do not see how a railroad officer, even in a minor capacity, can properly discharge his duties, let alone prepare himself for additional responsibility, without doing as I have instructed shall be done in our organization." In the letter of instructions mentioned officers of the railway were asked to bring up matters of interest appearing in the reading or advertising pages of the *Railway Age* "for discussion at the first following staff meeting."

One of the most significant statements made in this president's letter is that he instructed his heads of departments and other officers to read "all advertisements appearing in your extraordinary paper." Regarding advertisements he added the following comments:

"On the subject of advertisements, concerns that spend money for this purpose are in the first place entitled to have their material claims or representations given consideration, as their success is based on helping to produce satisfactory results for their customers. Therefore, in my opinion, it is the duty of railroad officers to read, study and discuss the various matters presented under the very general head of advertisements.

"From the standpoint of economy in time there is great advantage in doing this. A representative of a concern calling upon a railroad officer is, or should be, given time to present the subject he has in hand. He is, however, dealing with only one official, who may or may not carry the matter further. Indirectly, the railroads are paying for the time of this representative of the manufacturers. By using advertisements as a basis for discussion at staff meetings, it is possible to get thorough consideration of the claims presented as applied to local conditions and to have the benefit of different views.

"With experiment or trial initiated by heads of departments themselves rather than on instructions from superiors or through pressure of salesmanship, human nature is such that it results in pride of accomplishment if more satisfactory results are obtained."

What this railway president says involves high praise of the advertisements published by the equipment and supply companies. His statement that they should be read by all railway officers is based upon his own experience in reading them and benefiting by it. The fact is, that most of the advertisements published in the *Railway Age* are very carefully and ably prepared, and week by week give a wide variety of information regarding the purposes, the improvements in and the quality of railway equipment and supplies, and the results secured by their use, that cannot be obtained from any other source without a much greater expenditure of time and effort.

One point emphasized in this president's letter is of great importance. This is that the representative of an equipment and supply concern ordinarily is "dealing with only one official who may or may not carry the matter further."

On the other hand, the advertisement of the concern in the *Railway Age* carries information to officers of all departments, including the higher executives, and most purchases are determined, not by one officer in one department, but after conference by several officers who often are in different departments. As this railway president says: "Concerns that spend money for this purpose are entitled to have their material claims or representations given consideration," and the publication of their representations in advertisements tends to save money for both the railway and the supply concern because it is much cheaper for equipment and supply companies to present their claims in this way than it would be to have representatives of supply concerns and railway officers take all the time that would be necessary to have the former present their claims to all the railway officers that finally will influence the purchases made.

The letter from which we have quoted is an excellent statement of the reasons why railway officers should read the advertisements published in the *Railway Age*. Many of the advertisements contain information that is quite as valuable for a railway officer to have as any material we publish in our editorial pages. Furthermore, the letter is the best kind of evidence for equipment and supply companies that "it pays to advertise." You cannot advertise a locomotive and get an order for it by return mail as you can a package of chewing gum. Advertising, however, plays a great and increasingly important part in salesmanship in every industry in the United States. It is often not possible to trace the influence exerted by it, but any business man who does not recognize its influence is closing his eyes to the fact that advertising has contributed and is still contributing enormously to making the United States the greatest market for goods per capita that ever existed, and that the volume of goods produced and sold depends upon the way the market for them is developed and cultivated. With annual purchases of equipment and materials running into billions of dollars the railways constitute one of the largest of American



markets for American products, and the amount spent in advertising railway equipment and materials is almost infinitesimal compared with the volume of them produced and marketed.

There has been within recent years a notable increase in the number of managements of railway equipment and supply companies that recognize that advertisements to be most useful and effective must week after week and year after year constantly present really educational, full and convincing information regarding their products; and this is the reason why there has been a great increase in the extent to which their advertisements are read by railway officers and in the effect produced by them.

We are not inspired by an entirely selfish spirit in saying that many equipment and supply companies, by more and better advertising, could so enlarge their sales as to benefit both the railways and themselves. As the railway president quoted says, "their success is based on helping to produce satisfactory results for their customers," who, of course, are the railways. Every time an equipment or supply company sells a railway a signal installation where it is needed, or an improved locomotive or car, or an improved device of any kind, or some device of value that has never been used before, it sells something that will help its customer (the railway) get more satisfactory results, and renders a real service to the railway; and the right kind of advertising to sell improved equipment or new devices that the railways really need could be used much more extensively and effectively by many companies than it now is. There is no other means of communication between the seller and the buyer that is so cheap in proportion to the benefits they derive from it as the right kind of advertising published in papers that reach the right people.

## Increased Net Return Due to Reduced Operating Expenses

IT is not generally understood by the public, but it is a fact which cannot be too strongly emphasized, that the very substantial increases in railway net operating income which have occurred within recent months are entirely due to increases in the efficiency of operation. In other words, they are not due to increased total traffic and earnings, but to the fact that, because of increased efficiency, the railways are incurring a smaller amount of operating expense in earning each dollar of revenue than they have at any time since the adoption of government operation.

This point can be made most clear by comparing revenues and expenses for August, 1925, when the roads handled a large freight business, with those for August, 1923, when also they handled a large freight business. The comparison should be made with the revenues and expenses of August, 1923, rather than of August, 1924, because in 1924 freight business did not begin to recover from the slump of the early part of that year until September.

The total earnings of the Class I railways in August, 1923, were \$564,558,754 and in August, 1925, only \$555,366,575. This decline in total earnings was almost entirely due to a decline of about nine million dollars in passenger earnings, since freight earnings showed a small increase. The taxes that accrued in August, 1925, were about three million dollars more than in August, 1923. Therefore, the railways, if they were to increase their net operating income, were obliged by a reduction of operating expenses to offset both a reduction of total earnings and an increase of taxes. Operating ex-

penses in August, 1923, were \$427,783,312 and in August, 1925, \$388,869,558, a reduction of more than \$38,000,000. In August, 1923, the roads incurred an operating expense of 75.77 cents for every dollar of earnings they made, while in August, 1925, they incurred an operating expense of only 70.02 cents for every dollar they earned—the lowest monthly ratio since they were returned to private operation.

This reduction of the ratio of operating expenses to total earnings has been going on continuously for five years whether business has been good or bad. In 1920 the average operating ratio was 93.6 per cent; in 1921 (after rates had been advanced) 82.6 per cent; in 1922 (during which year freight rates were reduced) 79.3 per cent; in 1923, 77.8 per cent; in 1924, 76.0 per cent; in the first eight months of 1924, 78 per cent, and in the first eight months of this year, 75.8 per cent. The reduction has been due entirely to increased efficiency and economy of operation. Although total earnings were smaller, the net operating income earned by the Class I roads increased from \$98,343,235 in August, 1923 to \$124,804,666 in August, 1925.

As is almost always the case in any industry in which large economies are effected, a great part of the saving that has been made in railway operating expenses has been due to improvements in plant and operating methods which have resulted in reduction of the amount of labor employed. Statistics regarding the number of railway employees and their compensation in August of this year are not yet available. Statistics for the first seven months of the year show, however, that the average number of men employed was 1,752,325, while in the first seven months of 1923 it was 1,858,291, an average reduction of more than 100,000. The average wage being paid is slightly higher than in 1923 but the advance in wages has been much more than offset by reduction in the number of employees. For example, in July, 1923, the average number of employees was 1,954,687, and the total wages paid \$261,805,549, or an average of \$133.94 per employee, while in July, 1925, the average number of employees was only 1,795,669, and the total wages paid \$245,699,243, or an average of \$136.83 per employee. In spite of higher average wage, the total wages paid were over sixteen million dollars less. The reduction in the number of men employed and in total labor cost have been mainly due to the investment of capital in improved equipment and other facilities which has made it possible to handle a given amount of traffic with less labor.

## Rough Handling of Passenger Trains

MUCH comment has been published from time to time in these columns regarding the discomfort and irritation caused passengers by the violent shocks that occur in the stopping and starting of many passenger trains. Observation shows, however, that there is much less rough handling of trains on some railways than on others.

We have recently made trips on two roads in particular on which heavy trains were repeatedly stopped and started without any rough handling. We had noted the way in which these railways handled trains during trips made over them previously, and recent experience confirmed an opinion already formed that they had made unusual progress in solving one of the most important and difficult of present day operating problems.

We publish in another column a letter received a short time ago from a former locomotive engineer who suggests

that much of the rough handling of passenger trains in this country may be due to the use of friction draft gear on modern heavy steel cars. The subject is one of real importance, and we will gladly give space to any further communications that we may receive regarding the relationship of the type of draft gear used to the way passenger trains are handled.

After this letter concerning the influence of the kind of draft gear used was received we communicated with officers of the two railways the good handling of whose trains, we had particularly noted and asked them to what they attributed the progress they were making in solving the problem presented, and especially to what extent, if any, they attributed it to the kind of draft gear they were using. The vice-president in charge of operation of one of these railways replied in part as follows:

"I apprehend the majority of the equipment in the train to which you refer was composed of Pullman cars, in the selection of draft gear for which we have no voice. There may be some devices which we have on our equipment that are superior to those in use on some other roads and which are helpful in eliminating rough handling, but I think our reputation in this essential has been in the main established by the very intensive campaign which we have conducted for many years to bring about as near perfection as possible in minimizing rough handling. For many years our entire organization, general officers, superintendents, trainmasters and road foremen, have concentrated on this feature of the service, and while once in awhile we now get a bump, most of our engineers are so thoroughly educated that they are careful to avoid 'starting the hind end first' or 'putting the air on with their feet'."

An officer of the other road referred to replied that he attributed its success in reducing the rough handling of its passenger trains mainly to years of educational work among its passenger train employees. He emphasized the fact that the supervising officers have impressed upon conductors that it is their duty every time a bad stop or start is made to tell the locomotive engineer about it at the first opportunity, because the conductor always feels the shock while the engineer often is unaware that it has occurred.

There are very few other things that will contribute so much toward giving a railway's passenger service a bad reputation as rough handling of trains. Through passenger service is highly competitive and a bad reputation drives business away. The less passenger business a road has the fewer trains it can afford to run, and the fewer trains it runs the fewer men it employs in passenger service.

The line of promotion is from freight to passenger service, in which hours of work are shorter and wages are higher than in freight service. Therefore, when passenger employees so handle trains as to drive away business they tend to reduce the number of passenger train men that will be employed by their railway and to hinder promotions throughout the freight and passenger services. It is consequently to the selfish interest of practically all the train service employees of a railway to co-operate with the management in reducing the rough handling of passenger trains to the practicable minimum.

Experience seems to indicate that the problem of greatly reducing or practically eliminating the rough handling of passenger trains can be best solved by thorough and tireless supervision and by getting the co-operation of employees, especially of conductors and locomotive engineers; and it is a problem that deserves much more attention than it apparently has been given on many railways.

## New Books

*Analysis of Railroad Operations.* By J. L. White, formerly assistant comptroller United States Railroad Administration. Size 6 in. by 9 in. 381 pages. Bound with flexible cover. Published by Simmons-Boardman Publishing Company, New York. Price \$4.00.

Reviewed by W. J. Cunningham, James J. Hill Professor of Transportation, Harvard University.

Until within a comparatively recent period the policy of railroad managers was dominated largely by the familiar economic principle that an increase of a given percentage in traffic and in operating revenues has a more beneficial effect on net income than a much greater percentage of decrease in operating expenses. Wellington develops that point clearly in one of the first chapters in his classic treatise on railroad economics, and he proved his dictum that, under the operating ratio at the time his book was written, a ten per cent increase in revenues, brought about by an increase in traffic without changes in rates, would yield as much additional net as a fifteen per cent decrease in operating expenses. The emphasis in the past has been placed more upon increasing the gross receipts than upon reducing the outgo in expenses.

Within the past fifteen years, however, the slowing up in the annual increases in traffic and the tendency in regulation to hold down the level of rates while expenses were mounting, has focused attention upon the necessity for an intensive checking of expenses and the development of every available means for increasing operating efficiency. Besides, the new rule of rate making, in Section 15a of the Transportation Act, places upon the railroads the responsibility for conducting their operations in an honest, efficient and economical manner, and the Interstate Commerce Commission, in establishing the rate scales, is directed to take into account these factors of honesty, economy, and efficiency.

The present-day emphasis upon the over-all efficiency of railroad operation has resulted naturally in a much greater interest in accounts and statistics. The net results of operation as a whole may not be analyzed intelligently without an adequate knowledge of the many and diverse factors which affect the last figure on the income statement. In proportion to the completeness of the basic data and the skill displayed in deriving from such data suitable unit costs and other indices, the management of an individual railroad is in a position to determine whether in the matter of efficiency it is or is not discharging its responsibility to its stockholders and to the governmental regulating authorities. In the degree of completeness of the basic data, and the skillful use of analytical methods, there are wide differences on individual roads, but the universal tendency is toward a greater reliance on accounts and statistics as aids to intelligent and efficient management. The effect of that tendency has been to inspire a greater interest in the literature on the subject and to create a demand for an authoritative treatise which will aid those whose experience in the use of accounts and statistics has been limited. The new book by J. L. White is timely and should go a long way toward meeting that demand.

The author's purpose, as stated in the first chapter, is to review the system of accounts and statistics required by the Interstate Commerce Commission and to outline the methods by which these accounts and statistics may be used to analyze the activities and the net results of railroad operation. He has attained a fair measure of success in accomplishing that purpose. The viewpoint is that of the executive and the operating statistician; it is not



that of an accountant. No attention is given to accounting procedure, since that is in the realm of the accountant and the field is already well covered by specialized books. Mr. White confines his discussion to the description and interpretation of the accounting and statistical data from the viewpoint of the manager.

As appendices the important classifications of the commission (operating revenues and expenses; income, profit and loss, and general balance sheet; and train miles, locomotive miles and car miles) are reprinted in full, but the important requirements and their significance, are summarized in the text. Chapter II deals with the income statement and should make its meaning clear to those who lack training in accounting technique, particularly in the definition of "net railway operating income." Chapter III treats, in a similar fashion, the railway operating revenues, and the next chapter discusses the required statistics of freight and passenger services. This is followed by an excellent chapter which suggests methods by which the fluctuations in operating revenues may be analyzed.

The next eight chapters are devoted to operating expenses, unit costs, and analysis of fluctuations. These chapters are the most valuable in the book especially the five relating to maintenance. The regrouping of primary accounts is recommended and many good suggestions are made in connection with the analysis of changes in the several elements. The treatment of the troublesome problem of freight car repairs reflects careful study and contains suggestions of merit and originality.

The four remaining chapters deal with statistics of operation used as bases for unit costs, analysis of fluctuations in the freight train load, analysis of fluctuations in traffic and general expenses, and analysis of operations from the data in the annual report to the Interstate Commerce Commission.

The new book is of interest and should be helpful to that large number of railroad officers, general, regional and divisional, who have to do with the compilation and the interpretation of operating statistics and the related accounting reports. To those in minor official capacities, who are charged with the duty of putting together the basic data, a study of the book will enlarge their vision and help them to comprehend the ultimate purpose of their work. To those who are at or near the top of the official ladder, as well as to those who are on the middle rungs, the author's suggestions as to how the figures may be analyzed, interpreted and applied, should prove to be of value. Mr. White's service as operating statistician on at least three important railroads, supplemented by the opportunities to study and observe railroad operations on a national scale while he was with the U. S. Railroad Administration (first as assistant manager of the operating statistics section, then as statistician to the Director General, and last as assistant comptroller) should qualify him to write authoritatively from a rich background of experience.

In one respect the book is disappointing. The reader will wish that the author had gone further than he allowed himself to go into the discussion of unit costs and other indices of efficiency. Having had a taste of the author's ability to discuss with a fair amount of thoroughness and with originality such matters as maintenance of way and structures and maintenance of freight cars, the reader will want to pass his plate back for another helping when he completes the shorter treatment of transportation expenses and units of transportation performance. He would like to have the author's views and suggestions in the fields of equipment utilization and other phases of operation mentioned but casually or not referred to at all. The author has been consistent with the avowed

purpose of the book: viz., to "outline" methods of analysis. We wish that he had gone much further than the outline. Even though it is convenient to have the text of the Interstate Commerce Commission classifications readily available for reference in the appendices, we would gladly sacrifice that convenience and refer when necessary to our own copies of these classifications, if instead we could have an equal number of pages in which the author would develop further some of the features but briefly discussed or entirely omitted. This criticism, however, does not affect the value of what Mr. White has given us. The book is decidedly worth while. We hope that its cordial reception will encourage the author to give us more when he revises the book for its next edition.

*The Public and Its Utilities.* Edited by William G. Raymond, professor of engineering and dean of the College of Applied Science in the State University of Iowa. 346 pages, 7 illustrations, 6 in. by 9 in. Bound in cloth. Published by John Wiley & Sons, Inc., New York City.

The author of this volume is a representative of that group of engineering educators who accept it as their duty to give their students a training in the fundamental principles of business economics as well as in the more strictly engineering subjects. In the furtherance of this idea he has given courses of lectures to the students of his university for several years on various phases of public utility regulation. These lectures form the basis for this volume although they have been rewritten to extend their interest beyond the class room to the desks of those business men having to do with the operation or regulation of publicly or privately owned public utility properties.

The author sets forth his ideas on the fundamental principles which should govern in the management of public utilities. These principles are expressed in simple terms with the thought that when they are once fully understood they will eliminate much cause for dispute and litigation. While the scope of the book includes all common utilities, such as water service, gas, electric light and power, a large part of it is of equal or special interest to the student of railway regulation. This includes extended treatment of depreciation and chapters on taxes, the control of rates and valuation, all of which are based in large measure on transportation problems.

In the discussion of these subjects the author impresses one as being academic in some respects. This is in large measure, however, the result of care in presenting his principles in simple direct language. His attitude is that of a student without bias searching for the truth. As a case in point, he discusses taxation at some length with particular reference to the policy which should be assumed in taxing publicly and privately owned utilities. After pointing out that the ultimate effect of taxing the railroads and other utilities is to raise the rates for the particular service rendered without reducing the charge to the people as a whole, he states that taxation recognizes the principle that those who enjoy the benefit of the service should pay the whole cost of service somewhat in proportion to their use of this service. He concludes, therefore, that whether a property be under public or private ownership "it should be assessed and pay taxes as other property and should collect these taxes in turn as a cost of service from those whom it serves; and it is concluded further that if in general it be deemed public policy for any reason not to assess a public utility property when owned by the public, it should be equally the public policy to exempt public utility property from taxation when under private ownership."

Likewise, with respect to rates, he states that exactly the same conditions should govern in the determination of

rate schedules when the utility is under private ownership that govern when the utility is owned by the public. In view of the approach of the time when the decisions of the Valuation Division of the Interstate Commerce Commission shall probably be required to stand the test of the courts, the conclusion of the author with reference to depreciation as applied to a railway property is timely. He sums up his position with the statement that "a well maintained railroad property can never show a better condition than about 80 or 85 per cent of new condition. Some of a given class of the thousands of items going to make up a railroad property will be new, some will be ready to retire and there will be all stages of remaining useful life between these two units. The property is in as good condition as practicable and is kept so by continual expenditure for the renewal of retiring parts. If a court insists that for the protection of the public and the investors the 15 per cent or 20 per cent of deterioration shall be converted into depreciation of valuation and deducted from cost when finding value, then a way must be found to protect the property and its owners from an apparent loss that is not real. This way is to add to the estimated cost an undepreciable sum equivalent to the technical accrued depreciation, to be called a cost of development or of seasoning, or other appropriate name."

In discussing the fair return that a property should be allowed to earn, the author develops by mathematical analysis the conclusion that "it is desirable that two-thirds of the capital invested in the utility shall be borrowed because with this proportion the net earnings required for interest and fair dividends are a minimum. Under this assumption the fair return on the total investment should be one and one-third times the going rate of interest, including the effect of discount paid by utilities of the type under consideration at that time. The author then takes the position that it would appear wise to limit borrowing by railroads to one half the total investment and to permit correspondingly higher returns, that is to say, three halves of the borrowing rate.

As a whole, this volume is a constructive addition to the literature on the subject, particularly because it sets forth the principles of public utility control in a sufficiently simple manner to enable them to be readily understood.

*Principles of Locomotive Operation*, by Arthur Julius Wood, professor of mechanical engineering, the Pennsylvania State College. 315 pages, illustrated, 6 in. by 9 1/4 in. Bound in cloth. Published by the McGraw-Hill Book Co., Inc., New York. Price, \$3.00.

The first edition of this book, which was published under the title of the "Principles of Locomotive Operation and Train Control," has been used quite extensively as a text book in technical schools and as a reference book by many railway mechanical department officers. This, the second edition, is a worthy successor of its predecessor for the author has included in its revision the most recent developments, both theoretical and practical, in the design and construction of the steam locomotive. Prof. Wood has shown the locomotive as a power plant in which the maximum possible amount of energy in the fuel should be available at the drawbar. The application of the laws of mechanics and thermodynamics are brought out by a number of practical examples which point the way to a solution of the more involved problems in proportioning and design.

It is well for those who are being initiated into the mysteries of the locomotive to consider at the outset the application of the fundamental laws of mechanics as applied to locomotive design and operation. Hence, the book

begins by defining the purpose of a locomotive in terms of these laws. The purpose of a locomotive is to do work. Work is the overcoming of resistance through space and is, therefore, the product of the two quantities; namely, a force, and the distance through which the force acts. The utilization of heat energy for the performance of useful work and the various changes through which it must go in order to perform useful work at the drawbar, are discussed in the introductory chapter. The author's method of handling these fundamentals of locomotive design and operation cannot help but refresh the mind of the student who has already studied his thermodynamics and mechanics.

Railway mechanical department officers will find this book to be a valuable addition to their reference libraries. The arrangement of the book is such as to provide quick access to information on the various subjects incidental to locomotive design, construction and operation. A list of the chapter headings and a few of the sub-divisions in each chapter will give the reader some measure of the thoroughness with which the author has covered the subject. These are as follows: Principle Types of Locomotives; Determining the Tractive Force for Two and Three-cylinder Locomotives; Acceleration of Trains; Train Resistance; Effect of Air and Temperature on Resistance; Curve Resistance; Speed-Time Curves as Applied to Locomotive Performance; Dynamometer Cars and Tonnage Rating; Air Brakes and Brake Rigging; Combustion and Fuel Economy; The Formation and Action of Saturated and Superheated Steam; Valve Motion; Locomotive Ratios or Factors; The Proper Selection and Use of Locomotive Ratios; Counterbalancing; Locomotive Testing; Modernizing the Locomotive. The book also contains an appendix in which is given a number of convenient tables for use in design and calculation.

The chapter on tractive force includes a discussion of the effect of inertia of reciprocating parts, and the effect of speed on the tractive force developed by a locomotive. In showing the development of the Kiesel formula for calculating the cylinder tractive force for saturated locomotives, the author has supplied constants that may be substituted in this formula when determining the tractive force of superheated locomotives. These constants are intended to eliminate the usual difficulty encountered in determining the true average rate of evaporation and the effect of the superheater surface. This chapter also discusses the various factors entering into the calculation of the tractive force for three-cylinder, four-cylinder compound, Mallet four-cylinder compound, and for locomotives equipped with boosters.

In the revision of the text, a number of problems have been added on the design of foundation brake rigging, a discussion of the time lost in slow-downs and descriptions of the latest developments in stokers, feedwater heaters, brick arches and boosters. There is also included a method for laying out a Walschaert valve gear; factors and ratios for empirical design; a discussion of the theory of steam locomotive development; calculations for counterbalancing, and a discussion on modernizing the locomotive.

The chapter on the formation and action of steam has been entirely rewritten and includes the most recent data on boiler performance.

While intended primarily for use in technical schools, this book furnishes railway engineers and officers interested in locomotive design and operation a concise review of the theory on which certain problems in locomotive design and construction are based. In revising and bringing up-to-date his original work, the author has fulfilled the wishes of many mechanical department officers.



## Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,  
Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*American Transportation*, by Samuel Rea. Address at Altoona regional meeting, Am. Soc. of Mech. Eng. 21 p. Published by the Pennsylvania Railroad, Philadelphia, Pa.

*Effective Regulation of Public Utilities*, by John Bauer. 381 p. Published by the Macmillan Co., New York City. \$2.50.

*Statistical Abstract of the United States, 1924*, compiled by U. S. Bur. of Foreign and Domestic Commerce "Steam and electric railways and express companies," p. 357-388. 824 p. Pub. by Govt. Print. Off., Washington, D. C. \$1.

*Statistics of Railways of Class I, United States (1916-1924)*, compiled by Bureau of Railway Economics. Statistical Summary No. 5 containing financial statistics, traffic averages, equipment in service, employees and compensation, various operating statistics, taxes, etc. 10 sheets. Issued by Bureau of Railway Economics, Washington, D. C. Apply.

*The Story of Man's Work*, by W. E. Hayward and G. W. Johnson. Practically an outline history of the tools and implements with which buildings, roads, railroads, and other achievements of mankind have been constructed from stone axes to steam-shovels, with some discussion of changes in manner of living that have resulted. 241 p. Pub. by Minton, Balch & Co., New York City. \$3.

### Periodical Articles

*The American is the Aristocrat of Railway Workers*, by Lee G. Lauck. Survey comparing railroad wages from 1913-1924 in U. S., Canada, and twelve other countries as far as figures are available. Trade Winds, October, 1925, p. 8-11, 21-23.

*Consolidation of Railroads*, by Oscar W. Underwood. Complete text of speech of Senator Underwood at bankers' convention. Commercial & Financial Chronicle, American Bankers Convention Section, October 17, 1925, p. 117-120.

*New "Ways" for Old in New England*, by Billings Wilson. Discusses the Boston & Maine's policy towards branch lines, and inroads of motor competition. Military Engineer, September-October, 1925, issue. Pages 419 and 420.

*Railroad Abandonments and Their Relation to Highway Transportation*, by Henry R. Trumbower. Results of study by U. S. Bureau of Public Roads on railroad abandonments since 1920, "which lead to the conclusion that in but few instances has highway competition been the primary cause of the abandonment." Public Roads, October, 1925, p. 169-173.

*The Railroad Apple*, by Gareth Garrett. Concluding article of series presenting current railroad problems. Saturday Evening Post, October 24, 1925, p. 10-11-197-206.

*Railroad Valuation and Rate Regulation*, by Harry G. Brown. Considers possible effects on industry and economic welfare of valuation and rate-making policies, in a somewhat different approach to these subjects. Journal of Political Economy, October, 1925, issue. Pages 505-530.

## Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

## Rough Handling of Passenger Trains

CHICAGO.

### TO THE EDITOR:

The article entitled "Locomotive Running a Fine Art," published in the *Railway Age* of August 22 proved to be quite interesting for the reason that in the article reference was made to rough handling of passenger trains by American locomotive engineers and smooth handling of passenger trains by Mexican locomotive engineers.

The writer served as a locomotive engineer in passenger service on one of the larger railroads in this country on which the engine men take a personal interest and pride in trying to handle passenger trains the best possible, and later as a mechanical official for some twelve years with the railroads in Mexico.

The Mexican engineer has everything in his favor, including slow schedules, light trains and equipment of a lighter weight than on American railroads equally maintained, while the American engineer has to contend with schedules keyed up to the limit, and heavy trains that are at times beyond the capacity of the locomotive to lift from a standstill at points where there are bad conditions—for example, with an engine standing on a curve, or street crossing, due to rail conditions there is naturally a low factor of adhesion. Then, again there may be a difference so far unaccounted for, that is draft gear.

The Mexican equipment, as a general proposition, has a spring gear, while the equipment on the American roads is composed of modern heavy steel cars equipped with friction draft gears that are supposed to absorb the shocks, but in reality produce them, due to their rigidity in starting and lack of stored energy or release in returning to their normal position, having no flexibility whatever between the open or closed position of the draft gears. To avoid slack action and the resulting shocks complained of, the same resilience that is required in the trucks should also be provided in the draft and buffing devices, so that the longitudinal cushioning would be equal to the cushioning effect of the truck springs.

The rigid friction gear in itself does not lend any flexibility to starting or bunching of a train. The friction gear depends on friction for its initial resistance; therefore the result is that of or nearly the same as having a solid block. The effort required to start a passenger car, or even a train, is less than that required to compress a high power friction gear. Friction draft gear is not designed for its flexibility, but to resist shock from sudden impact yet due to its being of such capacity and purposely rigid, it is a question whether the draft gear or the passengers absorb the shock.

The moral is, "Give the passenger locomotive engineer the benefit of the doubt." I would rather not be around—at least not on a passenger train—if Mr. Train Master, or even Mr. Road Foreman, attempts to demonstrate proper handling to the engineer. That is usually when things happen.

AN EX-ENGINEER.

# Building a Railroad Under Unusual Conditions

*How a branch of the Cuba Railroad was built in record time*

By Ben B. Shaw

Formerly Chief Engineer, Cuba Railroad

THE main line of the Cuba Railroad runs from Santa Clara east to Santiago de Cuba. In general it follows the center of the island with branches serving the principal towns and harbors on the north and south coasts. The original line was planned and built by the famous railroad builder Sir William Van Horne.

In order to develop a new sugar cane territory the construction of the Santa Cruz branch was planned by the railroad company and subsidized by the Cuban government. This branch connects with the main line at Camaguey and runs south 98.5 kilometers (61.2 miles) to Santa Cruz del Sur on the south coast of Cuba.

The first 33 kilometers from the main line south to Vertientes had been built in part when instructions were received to complete the building of this branch. At Vertientes there is a large sugar central or mill, so the

season starts about the middle of May and lasts until into December, and this slows up work more than any other single factor. One has to experience a rainy season in the tropics to fully appreciate the old negroes remark "When it do rain it sure do rain."

The shortage of labor was relieved by the immigration



A Section of the Completed Line

building of the first 33 kilometers was assured, but whether to build from Vertientes to Santa Cruz or not was a question—it is 65.5 kilometers from Vertientes to Santa Cruz. However it was decided that the development of this virgin tropical jungle into a sugar cane producing area would warrant the expense. On March 16, 1924, authority was received to commence the work on the extension and on April 1 forces had been organized and work begun. The expiration date of the subsidy was December 14 and it was necessary to make every move count as the line had to be accepted and in operation by that date.

## Rainy Season the Greatest Obstacle

The greatest problems to overcome were the rainy season, the shortage of labor, the high prices paid labor during "the dance of the millions," which was still being felt, and the fact that all track material had to be purchased in the United States and shipped to the island. The rainy



Mahogany Was Largely Used for Box Culvert Construction

to Cuba of large numbers of Spaniards, Germans, Poles, Russians, Jamaican negroes and a few French. The different nationalities were as far as possible placed in separate gangs but on one particular occasion two Frenchmen



A Track Laying Gang

were working with a German gang. It did not take long for this mixture to come to a boil as one night a fight started in the dining car, and though the Frenchmen were outnumbered forty to one, they were able to make a good accounting for themselves by the use of hot soup and



heavy table-ware. The dining car after the fight resembled an old time outfit car in the spring.

To overcome the lack of communication, a telephone line was constructed as fast as the clearing was out of the way and the telephones necessary to handle the work installed. This enabled better handling of material and supplies than could possibly have been secured by depending on the old time messengers. As soon as this line was constructed the kilometer post markers were put up. This enabled the engineers to have an easy check on the de-



Corduroy Construction Used at Lagoon Crossings

liveries and the contractor's work and was an aid in making reports.

#### Clearing Work in the Tropical Jungle

The clearing was done by contract. To watch a clearing gang at work would interest an American as everything but the big trees is cut with machetes. The large

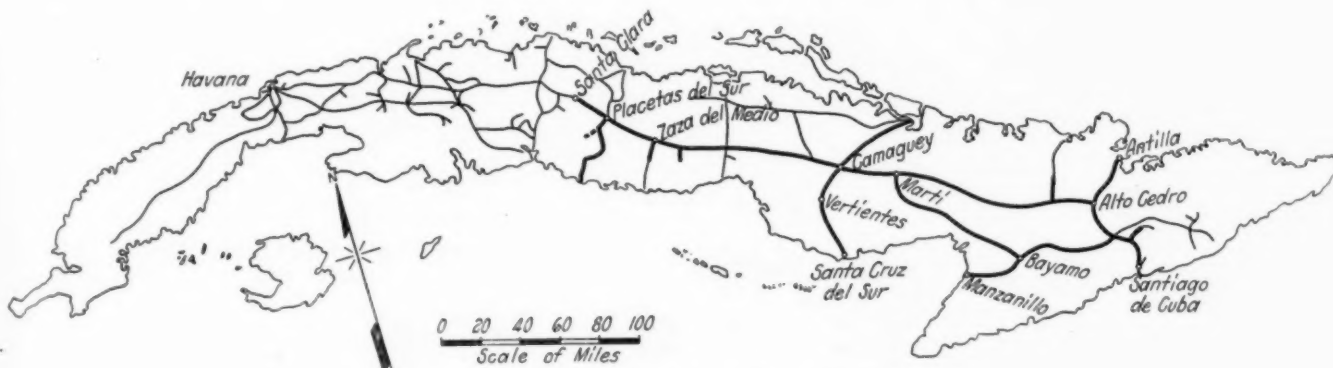
ter and the construction of other lines under similar conditions had proved that this material made expensive maintenance. As a fair grade of sand shale was to be had in a pit at Kilometer 65, this material was used for embankments.

All the culvert and trestles that could be framed were contracted, the contractor furnishing the material from the adjacent jungles, as teaming any distance was out of the question. The culverts, like the one shown in one of the pictures, were made of mahogany. All bridge work requiring the use of a pile driver was handled by company forces.

The building of the Santa Cruz wharf was gotten under way immediately upon advice to commence construction, as the time limit made it necessary to carry on the work from the south coast towards the north and from Vertientes south. The wharf was constructed by company forces, a track pile driver being used to do the driving. The driver was loaded on the lighter at Manzanillo and towed to Santa Cruz. Upon reaching there the end of the lighter with the driver was pushed toward the shore until striking bottom and the first bent of the wharf driven, after which the lighter was backed out far enough to drive the second and third bents, then the driver was landed on these bents and worked its way to shore. In order to extend the wharf so as to secure deep enough water to permit the operation of loaded lighters and a tug the driver had to be turned. It was again loaded on the lighter, the lighter turned and the driver backed onto the wharf. Then with the driver headed toward the sea the wharf was extended to a length of about 880 ft.

#### Native Woods Make Hard Ties

Ties were contracted for locally to be delivered in quantities of 2,100 to the kilometer but due to the rains delaying the contractor it was necessary to assist with ties from the main line. It is interesting to know that the better grades of native ties are so hard it is impossible to drive a spike in them without first drilling a hole. Templets were made to mark the spike holes and drilled in advance of the rail-laying. On the north end all rail-laying was done by company forces but on the south end it was contracted. However, due to labor



Map of Cuba, Showing the Cuba Railroad in Heavy Lines

trees are cut with a saw. A good macheteman is an artist in his work. The machete is handled different from the axe; instead of a full arm swing the force of the machete blow is given by the wrist. A gang of machetemen will attack a tropical jungle so dense with undergrowth of vines and brush that one cannot pass through it, but all this soon falls before them.

It was decided to do only the grading at stream crossings and in cuts ahead of the track laying. The soil along the location of the line consists of decayed vegetable mat-

difficulties with the contractors' forces it was necessary for the company to complete the work.

About every trick known on railroad construction was used and some never tried before. Due to the manner of construction without first preparing a completed roadbed a Fordson track tractor was used instead of a locomotive at the front on the south end. This tractor would handle two standard flat cars loaded with rail and track fastenings. at the lagoon crossings and in the low lands it was impossible to surface the track on the local soil, so the tim-

ber cleared from the right-of-way was trimmed and limbs from three to six inches in diameter were used to make a corduroy road ahead of the rail-laying. Instead of placing the logs transversely they were laid longitudinally and the cross ties laid and surfaced on them. The question has been asked as to whether this construction will not cause trouble later, but it is thought not as this material was buried so deep in the original soil and such heavy raises of the sand shale were made that there appears little likelihood of these logs moving under traffic.

The construction from the north to the south did not offer any extraordinary difficulties in the matter of furnishing power, equipment, material and supplies as a rail connection with the main line was always maintained, but the building from the south to the north was different. On this work everything had to be lightered from Manzanillo to Santa Cruz. After the pile driver came a locomotive. Fordson track tractor, flat cars, a caboose, outfit cars and coal. Two lighters were used, one of them being provided with three tracks, each holding three cars. One tug was used to handle either one of the lighters or both as was required. The locomotive was used to do the unloading at the wharf in the Santa Cruz material yard and to deliver material as far north as the track would permit. Beyond that point it was handled by the tractor.

#### Train and Engine Crew Was Resourceful

The train and engine crew that went from Manzanillo to Santa Cruz with the locomotive stayed on the job until the steel was connected and performed splendidly. They did nearly all of their own repair work, maintaining the locomotive in serviceable condition, on one occasion even making bearings out of hardwood, and this hardwood was still in service when the locomotive came through on its own wheels to the Camaguey shops. In general, coal was used for fuel but whenever there was a shortage, wood was substituted.

The pictures give some idea of the terrain that had to be crossed. As the rains continued, the ground became so soft horses would sink to their bellies at every step and, if care was not exercised by the rider, would bog. In fact bulls also mired, often making it necessary to snake them out.

On the north end, the problem of keeping the track surfaced was much easier than on the south as there was a pit of serpentine at Kilometer 5. This work was loaded on flat cars with a steam shovel and unloaded with a Lidgerwood. By surfacing the track on this material behind the rail-laying, it was possible to maintain good train service.

The stream Rio Negro crossed the center line seven times but by means of channel changes all but one main crossing was avoided, with small boxes to handle the local drainage. On several occasions there would be heavy rain in the Rio Negro water shed above the railroad and when this reached the right-of-way everything was washed away and the laborers would be seen on tree stumps and in the trees seeking safety from the high water. Working under such conditions caused the men to contract malaria and "fiebre" until the drainage and sanitary work provided a more healthful condition.

The rails were connected at 5:25 p. m. on November 19, at Kilometer 68.18. As soon as the steel was laid to Kilometer 65 a second shovel was cut into the pit at that point and this outfit, together with the one working at Kilometer 5, supplied material for making a running surface for the remaining distance into Santa Cruz. On December 12 the inspector general of the railroad commission made a trip over the new line and accepted it. On the fourteenth scheduled trains were run and the company secured the subsidy. It was said frequently during the

course of the work that the line could not be completed on time, but due to the splendid results accomplished by the men employed it was done. The natives living near the right-of-way were interested in the construction work and spoke of the railroad as "Linea Electricidad" or in English, "a line built like lightning."

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading in the week ended October 17 amounted to 1,106,114 cars, 15 cars more than the total for the week before and an increase of 3,814 cars as compared with the corresponding week of last year. As compared with 1923 the increase was 33,019 cars. Decreases as compared with last year were reported in the Eastern, Central Western and Southwestern districts and in grain and grain products, coal and forest products. Loading of grain and grain products showed a decrease of 24,623 cars, while coal loading decreased only 5,856 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED OCTOBER 17, 1925

Districts	1925	1924	1923
Eastern .....	242,189	245,600	255,633
Allegheny .....	214,742	212,160	217,512
Pocahontas .....	57,839	52,744	44,738
Southern .....	160,777	155,470	145,674
Northwestern .....	174,673	168,957	172,554
Central Western .....	183,034	187,259	169,601
Southwestern .....	72,860	80,110	67,383
Total Western .....	430,567	436,326	409,538
Commodities			
Grain and grain products .....	45,300	69,923	48,763
Livestock .....	43,840	43,154	42,387
Coal .....	186,389	192,245	192,864
Coke .....	13,380	9,654	11,860
Forest products .....	68,174	72,329	70,849
Ore .....	55,790	41,899	61,924
Mdse., l. c. l. ....	269,820	255,883	252,971
Miscellaneous .....	423,421	417,213	391,477
Total .....	1,106,114	1,102,300	1,073,095
October 10 .....	1,106,099	1,088,956	1,085,938
October 3 .....	1,112,463	1,077,748	1,079,776
September 26 .....	1,120,645	1,087,954	1,097,493
September 19 .....	1,098,428	1,076,847	1,060,811
Cumulative total 42 weeks .....	41,161,601	38,970,947	40,542,048

The freight car surplus continues to decrease. For the period October 7 to 14 it averaged 130,797 cars, including 52,942 coal cars and 59,940 box cars. The Canadian roads for the same period had a surplus of 7,718 cars, including 5,085 box cars.

#### Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended October 17 showed a gain of 423 cars over the previous week but fell off 516 cars in the Eastern division. Coal also showed an increase in the West and a decrease in the East. Merchandise and miscellaneous freight were heavier in both divisions. The net increase over the same week last year was 3,539 cars.

Commodities	Total for Canada			Cumulative totals to date	
	Oct. 17, 1925	Oct. 10, 1925	Oct. 18, 1924	1925	1924
Grain and grain products .....	17,056	17,149	16,427	315,083	344,544
Live stock .....	3,426	3,653	3,095	98,273	90,582
Coal .....	7,407	8,154	7,559	164,826	216,619
Coke .....	331	326	255	11,816	9,600
Lumber .....	3,507	3,799	3,672	149,451	151,178
Pulp wood .....	1,363	1,594	1,523	111,584	110,526
Pulp and paper .....	1,981	2,051	2,007	84,817	82,231
Other forest products .....	2,866	2,886	2,491	117,685	108,033
Ore .....	1,776	1,674	1,183	58,755	52,979
Merchandise l. c. l. ....	16,571	15,543	16,090	637,736	609,928
Miscellaneous .....	17,332	16,595	15,775	530,227	505,167
Total cars loaded .....	73,616	73,424	70,077	2,280,253	2,285,387
Total cars received from connections .....	34,514	35,061	31,756	1,386,906	1,321,433



# Younger Men Tell of Opportunities

*Unusual program presented at a meeting of the New York Railroad Club*

**P**ROBABLY for the first time in railroad club history an entire evening was given over last week by the New York Railroad Club to the interests of the younger men, who carried practically all of the program, except for the necessary introductions and words of appreciation at the close of the meeting from George M. Basford and Clarence H. Howard. The young men who addressed the meeting on Friday evening, October 16, came from seven different railroads and represented as many different vocations, including a clerk, machinist apprentice, special apprentice in the mechanical department, transportation apprentice, division accountant, foreman in the maintenance-of-way department, and a university student who had spent his summer in a construction and maintenance-of-way camp.

The 12-minute talks given by these young men covered their experiences, with some rather interesting comments and an expression as to what they thought of the opportunities in their different vocations. It is significant that not one of these young men read his address and that while in all cases the material was carefully prepared in advance, it was delivered freely and effectively. The addresses were received with much enthusiasm and many suggestions have been made that a "Younger Men's Night" be made a regular feature of the annual program of the club. Abstracts of the addresses follow:

## The Transportation Apprentice

By Charles E. Alexander  
Pennsylvania Railroad

Comparatively speaking, the transportation apprentice is a newcomer on the Pennsylvania Railroad. The transportation department course of training is not yet three years old, whereas similar fields of training have been available to young men in the telegraph and signals, the maintenance of way, and the motive power departments for a good many years. Many of our general and divisional officers began their careers as signal apprentices, rodmen, or as special apprentices in the Altoona shops. What the future holds for the transportation apprentice, that individual cannot, of course, foresee; but he understands that his success or failure is entirely in his own hands. The company has gone more than half-way in offering him a thorough fundamental education in the work of the transportation department, and on his ability to apply this education he will stand or fall. He is now on the eve of being sent out on a division in his first regular assignment, anxious to test himself and prove to the company that their faith in him, which they expressed in appointing him as an apprentice, is warranted.

I want to tell you just who the transportation apprentice is, what the qualifications for his appointment are, and of what his course of training consists. An outline of the two latter points will answer the first question.

Here are the qualifications: (1) He must possess a college or technical school education, or its equivalent. (2) He must be under 28 years of age. (3) He must be able-bodied and healthy. (4) He must be willing to adapt himself to changing conditions. (5) He must be able quickly to grasp situations and handle problems. (6) He must demonstrate ability to handle men.

The first three of these requisites he must possess at the time of appointment, and he must also, at this time, believe himself to be possessed of the latter three. At any rate, his work and attitude during his course of training will quickly prove whether or not he does possess them.

As for his work, even though I only outline that very briefly, I am sure you will be able to appreciate the thoroughness of his training.

First, he spends one week travelling over the road with an experienced general office man, visiting the principal terminals and seeing the main routes of traffic.

He is then assigned to a division, and spends his first year in one of the principal yards on that division, working as a yard clerk. This year's work is divided as follows: (a) Three months in the receiving yards, the time being equally divided in the east and westbound sides of the yard. (b) Three months in the departure yards, both east and westbound. (c) Three months on night duty. This time is also spent in the departure yards for the purpose of becoming familiar with the different type of work handled at this time, such as the making up and despatching of the preference and local freight trains. (d) Three months in the general yardmaster's office.

Here the apprentice works at crew despatching, car tracing, the keeping of car records, making up the various reports of the daily business handled, and at the yardmaster's desk he is taught how the whole operation of the yard is synchronized under this man's control.

The apprentice then goes to division headquarters, and works two months in the trainmaster's office, and three months in the superintendent's office. In the trainmaster's office he works with the car distributor, learning supervision of the handling of empty equipment, and in the train despatcher's office he is instructed in despatching and how the train movements over the entire division are controlled from this point. Later, he is expected to try his own hand at despatching under the supervision of the regular despatchers. In addition he may be given an opportunity to handle some of the trainmaster's miscellaneous correspondence.

The work under the superintendent is largely road work, riding slow, preference and local freight trains, as well as the various industrial working switch engines. Thus he learns the work of the engine and train crews in these several classes of service; he becomes familiar with the physical characteristics of the division, and he also has an opportunity to learn something about firing and handling an engine.

He has his name put on the list of those to be called in case of a wreck, and may be called out at any time of the day or night to go out with the wreck train.

Before the completion of his course he must take the examinations on the book of rules and physical characteristics, and on the air brake. His previous work in riding freights over the division is a valuable supplement to his studies in preparing for these tests. After he has successfully passed these examinations comes his brief try-out as a despatcher.

For short periods of time the superintendent assigns the apprentice to work in the offices of the division accountant and the supervising agent, and at some of the

desks in his own office. A week or two is spent at an interchange office or at a freight station or transfer.

Now, the apprentice goes back to the yards again—to the smaller yards on the division—for six months. It is the intent at this time that he should, as far as possible, show his ability to handle assistant yardmaster's work as soon as he has learned the peculiar characteristics of each yard. The assistant yardmaster under whom he is working may permit the apprentice to assume the full responsibility of the position for certain hours each day, or they may handle the work jointly, one assuming charge of the office while the other does the outside work of directing switching movements. Either method is splendid training for the apprentice.

At the end of this period he then goes to the wage bureau at Broad street station, where he becomes familiar with the Pennsylvania plan of employee representation, and its operation in the handling of all labor and wage questions. This is one of the most valuable phases of the course, not only because of the importance of the labor question, but also because he is taught to think in regional and system, rather than merely in divisional terms. When he goes out on the division again he will be a better company man for the realization that his division is only a part of the whole, and that it must work in unison with the other similar parts for the successful operation of the system.

Three months in the wage bureau completes the course, but the present class of apprentices have been given a sort of "post graduate" term in the offices of the superintendents of freight and passenger transportation, working as inspectors on the road. This has had the effect of giving them a view of their region, of its yards and main track, which they have not had before, and which is a valuable supplement to the preliminary road and yard study.

The opportunities are unlimited, and that there is no brighter field of opportunity for the young man entering the railroad service than in the transportation apprenticeship course of the Pennsylvania Railroad. But what you make of your opportunity is, as everywhere else, entirely up to you. It is specifically stated in the regulations governing the course that it is not the intention to accord apprentices any special favors or concessions, but merely to afford them an opportunity because of their possession of special qualifications. As President Rea stated at the time of his retirement, all that a man has a right to ask for is a job. Then if he is entitled to hold that job or a better one, let him prove it.

## The Detroit Conference

By Leo Downs

Machinist Apprentice, Lehigh Valley

I attended the Y. M. C. A. Conference at Detroit as a delegate from the Lehigh Valley. The general idea of the conference was the creating of a better feeling between everybody, not only between the company and the men but among the men we are working with. Things go better where there is harmony and contentment; take, for instance, if there is a better feeling between employer and employee each one is bound to know more about each other's affairs and in this way can adjust differences a lot better.

An important thing to me was that the management went so far out of the way to help their employees. I was impressed by the many roads represented and the great distance traveled by some of the delegates and of the expense the companies went to give the young men a clearer understanding of things. It also shows that this

feeling is not confined to any certain section, but is spreading all over the country. An example of it is the feeling that exists in our organization at Sayre. The company turned over to the employees one of its large buildings for an amusement center, who spent much of their own time and money in fixing it up. The shop band gives concerts during the lunch period and then we have our own orchestra which plays at all our entertainments and social events. Dinners are served to us through the Employees' Athletic Association at a cost less than they could be purchased any other place. The Assembly Hall, by which name it is known, has grown into a fine community center and has done much to bring about a better understanding between the railroad and the townspeople, as well as getting the men to know each other and their families better.

The finding of your life work was one of the most important topics considered at the Detroit conference, or trying to find out if you are in your right place. To be in the right job, a man must be suited to his work and be able to enjoy working at it. If you are dissatisfied with your job it is a sure sign that you cannot do justice to your work. To succeed you must be able to enjoy doing your work. Make a kind of a hobby out of it. About 75 per cent of the workers of today are in positions that they are not fitted for. Most of us do not wish to be honest enough to ask ourselves if we are really happy and contented with our work. Many men believe that they couldn't work at anything else but the jobs that they have been doing and are accustomed to following. This fact is realized in our apprentice system; when they see a boy is discontented and is not getting along well they take the matter up with him and try to find out the place he is best fitted for. This same thing is applied in regards to starting a boy on his trade.

At the conference discussions were also held to try and bring out the finer things in a person's life and work. The first was that he have some kind of religion, and that he should be clean in thought, speech and action and to serve God. Some of the things discussed were, "harmony," "contentment," "service to your employer," and "studying to get ahead in your work." At the conclusion of one speech, cards were passed out with a list of positions on the railroad and the delegates were asked to fill out whatever job they thought they would like, whether they are working at it or not. Then they were separated into groups that chose the same jobs and were placed for luncheon at tables with an official, who was best qualified to talk with them on the vocation of their choice. In this way each boy had a chance to ask questions about his own work from someone who had been through somewhat similar experiences and could advise him what to pay most attention to as he worked his way up.

I feel that the conference was a lot of help to me as our company has had plans in operation along the same lines but which the conference brought out more clearly. It shows what an interest the railroads have in their apprentice boys. I cannot fail to put in a good word for the apprentice school because it was one of the best steps taken by the companies. It gives the boy who cannot afford a better education a chance to study along with his work. The bigger cities have night schools. Our apprentice school fills this need in our community where there are no night schools. Most of the boys appreciate it and try to get all they can out of it.

Another thing that was interesting at Detroit was that you had a chance to talk to apprentices from other roads and find out what improvements other roads had and what advantages we had over other roads. Take the Santa Fe,



for instance; they have four hours per week of apprentice school where some others have only one. This contact with others gives a boy a chance to broaden his mind. We met fellows from all over who could tell us things that we never knew and we in return could tell them things.

The enthusiasm shown by the boys when we arrived back home was wonderful. They asked us what took place and we told them all we could and explained the idea back of it. They all seem anxious to attend the next conference and it will be quite a hard job to pick the ones to go.

## What Can Be Done to Help the Young Man

By Forrest W. Holland

General Foreman, Maintenance-of-Way, Erie Railroad

Most of you men started in railroad work rather young and therefore know what are the necessary steps for educating the younger men for promotion. I say promotion, because all men want to advance.

Most of us like to play games and become interested in such things not only on account of the games themselves but because of having watched some older boy play, who is exceptionally good, such as a good baseball pitcher, or a boxer. Boys admire a hero and like to follow a leader. As we grow older we continue to imitate some older man. I know this was so in my case. When I was a young man, I lived in the country and the majority of the young men followed in their father's footsteps—farming. A railroad ran through the vicinity, and whenever possible I would go to a place where the section men were working and watch them. The work appealed to me, not only because it was so different from farming, but because I took a fancy to the foreman of the gang, whom I then considered an extraordinary man. Why did I think so? For the reason, that he was capable in handling his men and work.

As soon as I became old enough, I obtained a job as waterboy for two summer vacations, going to school during the winter months. Next, I worked as a track laborer for two years and then became foreman. I surely felt important and acted it. This is where we young men make our mistake. We think because we have been put in charge of men that we must make our authority felt. The first thing I did when I reached the place of work was to take off my coat and start hustling, hollering and swearing. I thought this was the way to handle men as no one had shown me a better way. I thought at that time that men were machines, instead of human beings. After a while I lost all of my men and had it not been for the advice of an older man, who pointed out to me where I was wrong, I would probably have lost my job. Instead, I saw his point and changed my methods. Instead of driving them, I learned to persuade them. Why did I make this mistake? I was young and needed instruction in handling men, which I did not receive. The handling of men is a science and a mighty important one.

We young men often make mistakes, due to lack of proper instructions. I have made several for the reason that my superiors did not give me the necessary information and I was afraid to ask questions. This reminds me of the time when I was told by my superior to take charge of relocating some switches. My knowledge of this kind of work being limited, and fearing to ask questions, I was allowed to start the work without further instructions from my superior. The result was, after working nearly all day, that I had installed a frog in the

wrong location. About this time the supervisor appeared and criticised me severely.

This discouraged me in my work and made me fear my superior more than ever.

Why was I afraid to ask questions? On different occasions I had asked questions and was told to keep my eyes open and learn. Thus I remained silent and, therefore, took unjust criticism many times because I would not express my point of view. If a man needs criticism, it should be given in a manner that will not arouse antagonism and it should also be constructive. Some officers do not stop to consider that a few harsh words may spoil a good young man.

Another reason that many young men do not express themselves more freely is that they do not know how, and if they do, often make the wrong impression. I was much this way. I was afraid to talk to any of my superiors. If the division superintendent came where I was working, my tongue refused to function. If he asked me any questions about my work, I could not answer with any degree of intelligence. I was not only afraid, but because of living where there were no opportunities to improve myself, such as clubs and night schools, I did not know how to "put across" an idea when I had one. In other words, I did not know how to sell my ideas to others.

In due time, I was sent to Buffalo and after being there a short time was asked to join the Central Railway Club. This was my first opportunity to mingle with other railroad men, especially the railroad officials. This made me take more of an interest in my work, for I began to realize that all officials were not cold and harsh, but were plain human beings like myself. By attending the meetings of this club, I learned more about my work and railroading in general.

The best thing that ever happened to me was when a club was formed at Buffalo through the efforts of our division superintendent, and I was made a charter member of what is called the "Erie Literary Club." This club is composed of all the division officials with some yardmasters, agents and chief clerks, the object being to teach to its members the art of salesmanship. Meetings are held each week. The programs consist of prepared talks, extemporaneous talks, dialogs and debates. Each member takes part in the programs. This club has been more helpful to me than any other thing I can remember. I am no longer afraid to talk. I know that a year ago you could not have driven me onto a platform to give a talk. By hearing and taking part in dialogs, I have learned not only how to approach men and how to talk to them, but also more about the railroad in general. Also the talks and debates have taught me what are some of the troubles of the other departments and now I know how they can help me and I can help them. I used to have good ideas but could not express them in a manner that would attract attention. This club has taught me how. It has taught me the necessity of treating the public courteously always; how to educate my men in their work; how to handle discipline cases. The old way was to act as rough as possible and treat the men harshly whether they needed it or not. In this club, the right way is taught. To put the principles of the case before the man first, then get the facts and if the man needs censuring, do it in a constructive way.

The big thing I have learned is the real purpose of a railroad. If the older men can realize how much we young men depend on them as leaders; if they will take more of the attitude of a teacher rather than that of a boss; if they will encourage the young men to ask questions and try to get their point of view and also realize that men will work their heads off for a little praise, then

will the younger men be given a real start up the ladder. For we must remember that the young men of today will be the older men of tomorrow.

## Boys on the Chesapeake & Ohio

By Strother Keiser  
Clerk, Russell, Ky.

The first and main thing that a young boy needs is interest in his work. I don't think that any young man can do his work correctly and in the right way unless he is interested in it. A young man needs contact with men who have succeeded in life because it broadens his vision of life—he can see what is likely to happen to him and what things he might aspire to.

Then a young man also needs some one to help him choose that vocation in life for which he is best fitted. I don't think that any young man really knows what place in the world he will fill best and he needs the help of some older man in making his decision.

A little bit of encouragement to a young boy acts about the same as oil does to a piece of machinery. He can go on a good bit without the encouragement, but still he will render much better service and give much better results if he has encouragement.

The Chesapeake & Ohio Younger Men's Conference was held at Huntington, W. Va.; I attended it with a number of other boys from Russell, Ky. They had practically all the leading officers there—President Harahan, Vice-President Begien and Assistant to the President Grice, as well as Y. M. C. A. leaders. I think every minute of the conference was interesting and filled up, and everybody did things to help everybody else.

There is an old saying that there are two things that everybody likes to give, but nobody likes to take. That is advice and castor oil. If you start out to get advice you can get it anywhere in town. But will it be the right kind of advice? We want the kind that has been tried out, and when men who fill the leading positions on the C. & O. give us advice, we know it is the kind to heed.

I think I should enlarge on the time the C. & O. devoted to us boys at this Huntington conference. I am sure that all these officers and leading men could have devoted their time to their personal affairs to have netted them more in a financial way than coming down to Huntington and spending three full days with us, but they just let their own work go and their own interests drop, and they came down there and stayed the full length of the conference; didn't just run in and say a few words and then say, "Business is taking me away and I have got to go." I think all the boys appreciated the fact men who had attained high positions had time to reach down and devote some of their valuable time to us.

Another thing was the group discussions. They divided the boys into a number of groups of 12 or 15 each and in charge of each of those groups was a C. & O. official and a Y. M. C. A. man. These group discussions were extremely helpful because they gave everybody an opportunity to speak. One of the things we discussed was: "Which is the most important thing a young man who was starting out to succeed should have?"—character, technical training, or the ability to get along with his fellow workers; we had a real hot discussion about it, and I think we decided it was about equally divided up—that a fellow should possess all of them.

And you can see this conference was wisely planned by men who appreciated helping us boys. They really enjoyed helping us. I don't believe there was any other motive that would cause them to devote so much time to us in such a very hearty and sincere way. I have never had much experience in doing anything for anybody else.

I have been chiefly concerned with myself. But from the way they gave their time to us, that saying in the Bible must be pretty well true, that it is more blessed to give than to receive.

When we got back to Russell, we had meetings with all the boys at the local superintendent's office, as well as the Y. M. C. A. At several of these meetings we had division superintendents join us. One of us would tell of something that occurred during the Huntington conference, and in this way all the boys enjoyed a certain proportion, as much as we could take back to them, of the good things we received up there. Then these meetings we had back home, determined to a certain extent what we were going to do with our future lives. The officers of the C. & O. are trying to help those boys who haven't decided what they want to do.

We know that success in a man's life depends a whole lot on a strong healthy body, and the C. & O., I think, is doing a great deal toward inducing us to keep our bodies well and to keep us strong and healthy. We have a Y. M. C. A. where we have a swimming pool and a gymnasium and we have certain clubs such as baseball, indoor baseball, tennis, bowling—the sports that will give us the best physical training.

The C. & O. officials realize that they are not going to be here always and they figure, I suppose, that the best thing they can do is to leave behind someone whom they have tried to make as well qualified as possible to take their places. One of the gentlemen made a remark tonight that they wanted to leave us better fitted. Well, I don't quite think I would want to aspire to anything more than to fill my position *as well* as Mr. Harahan has filled his. Instead of just being concerned with the big things, he has time to devote to the little things, and to the boys that work for the road.

Mr. Downs said something about night schools. Well, we haven't a night school at Russell, but I must say something of what the railroad and Y. M. C. A. are doing for us. About seven of us work second or third trick and go to school in the day time. Four of us graduate this year. I expect to get my college degree just that way too, and so do these other boys. If it had not been for the C. & O. I doubt if I would have ever had the aspiration to go on through school and I am sure the other boys would not have, either.

One of the speakers said something about being satisfied with his work. Of course, a fellow really should be satisfied in a way with his work, but I don't believe there is a man here that is really satisfied with his work. If you are satisfied with your work, you might just as well go home and take arsenic or let somebody hit you with a broad axe, because you wouldn't have anything to look forward to. I have been with the C. & O. about three years. I am satisfied well enough to stay with them, but I don't want ever to be satisfied, because there is always room for improvement.

## D. & H. Student Summer Camp

By John MacMurray, Jr.  
Senior, Princeton University

The student summer camp on the Delaware & Hudson, composed of 40 men—representatives of several of the eastern and midwestern colleges—was engaged in construction work and in making a topographical map of the country to furnish sufficient data for a relocation of parts of the track.

Upon our arrival at Dresden, the first location of the camp, we were confronted with a train of red coaches. Being practically the only thing in sight that had any resemblance of civilization, we did not have to look far



to find it nor to look carefully to see how much there was to it. In all there were 8 coaches, 3 of which were to be our living quarters; each contained 16 bunks and lockers, a shower bath and two washstands. The remaining coaches had been converted into a kitchen, a dining car, an electric power plant which supplied electric light to all the cars, a storage car, and a drafting car. The dining car contained a long table with a zinc top upon which our meals were served in true camp style. The drafting room contained several chairs, benches and tables, two of which were placed end to end and were used for plotting the map.

Arranged as it was, the camp was not only compact but was a unit dependent upon no outside factor. As the work went along, the camp followed so that at no time were we more than five or six miles distant from the job. This mobility of camp was an interesting problem at times, for we would leave it in the morning not knowing where we would find it that night.

Although we did a lot of kicking about the food and other things at camp, we were at least satisfied in one respect—the week-end passes. We were issued gang passes over the Champlain division and each week-end the camp was practically deserted.

The 40 men were divided between the track and surveying squads. The track squad did the ordinary work of a section gang, whereas the surveyors were split up into four parties—the transit, level and topography parties, and an office force. Selections to these parties were made according to the amount of practical experience of the man. Members of these parties exchanged places, so that no one would be tied down to one job. Several of the students were made chiefs of parties and were held responsible for the work of their men. There was also an element of competition between parties to see which could cover the greatest length of track in a day.

Going more into detail of the work, the function of the transit party was to secure the center line of the track. The angles were taken to minutes and a check upon them was made once daily by observation with a transit on the sun for azimuth. One little realizes how accurate these observations are and how ideal is this method of checking. An error of two minutes was considered alright; three minutes shaky; but four minutes required a repetition of the work.

The level party using bench marks established by the United States Government obtained the profile; whereas the "topog" party using a hand-level obtained the natural features of the ground to a distance of 400 feet on each side of the track. They also put in every 5-foot contour and used the lake surface as a check. In extremely rough country, stadia shots and deflections to points upon cliffs or across ponds were made and used as a basis for further work.

The country over which we worked between Whitehall and Westport is very rough. The roadbed follows closely the shore of Lake Champlain and the center line of the track seems to be a tangle of reverse curves. Normally on the east the ground slopes steeply down to the lake; whereas on the west one finds ponds and swamps, farmlands and cliffs ranging between 20 and 300 feet in height. These high walls of rock are interesting and picturesque to the tourist but to the members of a party taking "topog" notes upon them they have an entirely different meaning. As a further test of one's ingenuity, there are several tunnels along the line which not only make a pretty picture upon the tracing but also a pretty job in the field.

While all this work was being done in the field, the office force was busy plotting and making tracings of earlier notes so that it was one complete process.

Considerable credit must be given to J. I. Farrell, resident engineer, for the system and fine spirit which

permeated the camp. I understand that those in the office at Albany expected 10 miles of completed work for the summer, and would have been tickled to death to have obtained 25. When I say we completed 50 miles of track, you can well imagine the way the boys hustled.

I think the most important things not only about a camp like this, but about any job, are those which a man can acquire which will be beneficial to him in later life. To us who were students, this was a real job and we were drawing real pay which gave us an incentive to work hard so that things would move along smoothly. We learned how things were done in practice, became better acquainted with the instruments and probably acquired a technique in handling them which could not otherwise have been obtained. Those of us who were given charge of parties soon realized that there is a knack in handling men so as to make every move count. Besides these, there is a store of things which not only help to broaden a man's mind but help to give him an insight into the type of work he wishes to follow later.

## Division Accounting, Its Growth and Opportunities

By H. E. Norton

Division Accountant, New York, New Haven & Hartford

Back in 1918 and 1919, the railroads were experiencing considerable difficulty in meeting the increasing demands of the Railroad Administration and Interstate Commerce Commission for various statistics and accounting data, particularly as to the promptness with which such information could be furnished after the close of the month or whatever period was covered. Consideration of this problem by the executives of the New Haven pointed to a change in existing methods as the solution.

The practice at that time was of the "line organization" type; that is, the accounting for each department was done by members of that department who reported to its head. Thus, the distribution of transportation department charges were made by employees of that department reporting to the division superintendent, the maintenance of way by men reporting to the division engineer, and so on. There were, therefore, as many different distributions and methods as there were departments and naturally, because there was no common standard, much duplication of work resulted and much time was wasted in passing information through various offices before it reached its final destination. Besides this, the accounting department, which was the most vitally interested, had no direct control of accounting and payroll work at the source.

In order that these conditions might be improved, committees were formed early in 1919 to investigate and analyze existing methods, apply corrective measures where possible and finally to install division accounting if practicable. This preliminary work consumed about 10 months and resulted in a plan for division accounting. By division accounting I do not mean the spread of system charges by operating divisions, but rather the collection of all a division's charges at the source, by separate units for each division. The organization proposed was of the "functional type," reporting directly to and under the control of the general accounting office, but acting as part of the division operating staff and being located at division headquarters. Its responsibilities were for correct application of all wage schedules, Interstate Commerce Commission orders and regulations governing accounting and wages, monthly estimates of operating expenses, distribution and correctness of all payrolls, correctness of returns from the field forces covering labor

and materials, A.F.E. accounting and the production of statistics required by all departments.

Now that the plan was ready, the next step was the selection of the men for the initial installations and their training in the new work. This consumed an additional eight months and on September 1, 1920, the first installation was made on the New Haven division. When the success of the plan was assured, additional units were installed until on March 1, 1921, the last of the 10 divisions of the system was covered.

So far, the growth of the idea shows two well defined steps, the first covering preliminary or foundation work, which consumed about a year and a half and the second the actual installation covering about six months or a total growth from centralized to division accounting, comprising ten operating divisions, in two years. It is significant that 75 per cent of the total time was used in foundation work.

The growth of the new department, however, did not end here; additional duties were taken over from time to time. As examples—analyses of costs of operations of stations, yards, train services, etc., notably the so-called "commuter studies" and the "New England roads passenger service study for June, 1925." Another important addition was the preparation of department budgets and control statements showing loss or gain. It is doubtful if the present transportation department budget would have been as successful without division accounting.

A five years trial of the system has demonstrated its usefulness, both from the standpoint of economy and efficiency. This growth or change from centralized to division accounting does not at first glance make apparent any greater opportunities to the younger man, nevertheless, these are present. Under the older method, accounting, to the operating man, was rather a by-product and this work was very often considered of minor importance. Therefore, the inclination was to favor the men handling the actual operation over those handling the accounting. Also, these men were scattered among the various branches of the operating department. It follows, that the "figure jugglers" had a harder time selling their ability to the man higher up.

On the other hand, the new system collected all these men for each division under one accountant, who was thoroughly familiar with their problems and was personally interested in developing their talents along accounting lines. This feature alone, constitutes a substantial improvement in their opportunities.

At the present time, accounting is a growing field; we are coming more and more to desire and demand exact costs. These division accounting offices, where costs are collected at the source, present a wonderful opportunity to the young man who has mastered the theory of accounting and wishes to get the practical side, or to the young man who wishes to get the practical while he studies the theory. Practically every operation of a railroad is reflected in a division's account, so the young man with ambitions toward railroading can get the fundamentals at first hand in one of these offices.

These units are of such a size that the head can know personally each member and his work. Therefore, ability can be easily recognized as opportunity offers. Organization and control of men are two of the necessities in the equipment of the man who would be successful. The division accounting office is handled on the departmental plan and again because of its size presents a fine chance for the study and application of these features. Accuracy is another essential of success and accuracy is absolutely necessary in railroad work, especially in accounting and timekeeping. So the young man in one of these offices must acquire this valuable habit if he stays. Sta-

tistics of costs and operations are becoming more and more important and as the division accounting office is responsible for and produces such reports its members have the chance of securing valuable experience in the make-up and preparation of such figures.

A man's ability is measured directly by the results he gets, and in these days results are measured to a great extent by savings, either in time or money. Every operation of a division and the costs pass through the division accounting office. Therefore, the members of its force have excellent opportunities of working out more efficient methods or of correcting unduly expensive practices. Their success in these endeavors not only better their business judgment, but reflect directly to their personal credit.

## My Experience as a Special Apprentice

By C. F. Phillips  
New York Central

All of us realize the value of the regular machinist's apprentice course to both the railroad and the apprentice; the special apprentice course serves the same purpose to the boy who expects to go further in preparing himself for a bigger job. All of us realize the value of an education even though the special course taken in school is not followed up in actual life, but very few realize the value of a well balanced education which includes what the "old timers" call experience. A college education is looked upon as the height of one's ambition, and in fact it should be, but a college education in itself is not worth a great deal unless mixed with some of this experience and hard knocks of life.

Regardless of what vocation a young man selects, he unconsciously serves an apprenticeship of some kind by beginning at the bottom and accepting a small salary for the first several years. This is true with any profession or occupation that holds a future for the fellow who applies himself, and especially is this true of the technical graduate. It seems the greater the height to be attained in any given work, the lower the beginner must start and the more intensely he must apply himself. So, why should not a young man entering railroad work with the hopes of becoming an official some day, spend this time and effort at the beginning in gaining a well balanced practical training no college has yet been able to give.

When I first entered railroad work, I was a mere green country boy, having lived the greater portion of my life about 10 miles from the nearest railroad. Like most boys fresh from college, I didn't know what I wanted to do except to see and grasp that opportunity which had been preached to me for so long. I had no idea at that time that I would be in railroad work today, but I soon learned I wasn't prepared for any vocation and that I must equip myself for some definite work and then stick to it or get out and sell ribbon at a five-and-ten-cent-store. There was no standstill, I had to either back up or go ahead. At this time, I was attempting to hold a semi-mechanical position, but I knew very little about it. A month or so after I started, the boss dictated a letter using the term "basket bridge." The secretary had never heard of the item before and began to wonder if he had taken the dictation right. So to satisfy himself without bothering the boss, the secretary called me in and said; "Phillips, you are a mechanical man and I am not, I merely copy what the boss tells me, so I would like to know if there is such a thing as a 'basket bridge' on a locomotive." Well, so far as I was concerned, a basket bridge could have been a red ring painted around the outside of the smokestack. Having confidence in the secretary's ability



to take dictation and knowing that I could look the matter up before the letter got out of the office, I said, "Yes," but was careful not to tell the secretary where the basket bridge was located on the locomotive or what duty it performed.

This occurrence taught me a lesson never to be forgotten, and before the day was over I decided a special apprentice course was the only solution to my problem. I knew this would mean a cut in salary. I thought at the time I wouldn't care for the salary, but I did. Yet, I knew I was making a good investment. After I got to the shops, I learned I was not the only one investing money in my special apprentice course. The railroad was investing more than I was, for I was not on any one job long enough to acquire production. To know that the railroad was spending money on me encouraged me a great deal.

I was started out on the shoe and wedge job on the erecting floor and was placed as a helper to one of the fastest workers in the shop. I was told that after I had served a month on the shoe and wedge job I could submit a tentative program for the rest of my course and if it was satisfactory it would be approved. I know now why they played safe and gave me no choice about the shoe and wedge job. Some of my friends wanted to bet me I wouldn't last a week, but it was against my religion to take what I thought to be sure money. I stayed through the shoe and wedge job; at any rate, you needn't hunt up the mechanic with whom I worked for he is a friend of mine and won't tell tales out of school.

I didn't know how I was going to get along with the shop people, but the first day was the hardest. Everyone looked at my new suit of overalls as if I had been sentenced to the electric chair at Sing Sing. I thought they were looking at me, but they weren't; they were merely counting up the left-hand monkey wrenches, sky hooks and the like they were going to have me bring them, to say nothing about having me try to put a pony truck under a switch engine.

After the first five minutes in the pit putting up shoes, wedges and pedestal binders, my new suit of overalls looked a wreck; and my head invariably got bigger every time it hit an air reservoir that happened to be between the frames on this particular locomotive. So, at the end of my first day's work I wrote everyone I knew on the railroad, recommending that air reservoirs and brake rigging on locomotives be dispensed with immediately.

The most important thing I learned in the shops was how to walk up to a greasy mechanic, so greasy his mother wouldn't know him, slap him on the back and say "Give me a chew". In fact, I didn't chew but it didn't hurt me to ask him for one, and I found that after I had treated him in such a manner he would loan me the key to his tool kit, lunch box or anything that was loanable. Another good way to make friends is to return a tool after it is once borrowed. It will probably be the first time the mechanic ever had a borrowed tool returned to him and he will never forget it. These little courtesies do not cost much but they have much to say whether one becomes a friend or foe. The average boy comes out of college feeling as if he is the "cock of the walk," and likely as not the first time he struts, his wings will get clipped. Believe me, I know.

One's success in holding a responsible position depends largely on his knowledge of men, which in turn depends largely on one's ability to place himself on the same level with whomever he deals.

The question most energetic young men want to know is "what opportunities will I have" or "what kind of a job am I going to get?" I was told not to worry about that for I would get as good a job as I deserved, but that

did not satisfy me for I already had as good a job as I deserved. I don't think a young man that is better fitted for a job than anyone else will have any trouble in finding the job provided he is willing to go through with the necessary process of getting the job. As you know, college men are holding but very few prominent positions with the railroads, principally because they are not willing to get their hands dirty and prepare themselves for the job. They want to find some short cut route, but somehow there doesn't seem to be any such animal.

## Railway Fire Protection Association Meets in Chicago

**F**IRES on 83 Class I roads during 1924 caused property losses of \$10,049,936 or \$1,048,813 more than in the preceding year. The number of fires on these roads totalled 8,608 or an increase of 214 over 1923. Of the 29 causes recorded, 16 showed losses greater than the previous year, while 13 showed decreases. The outstanding items showing increases were company fires on adjacent properties which exceeded the previous year by \$252,523; friction, hot boxes and brake shoes with an increase of \$335,410; heating appliances and flues with an increase of \$282,360; spontaneous combustion with an increase of \$184,908; torches with an increase of \$635,037; unknown with an increase of \$601,833, and wrecks with an increase of \$171,738.

Decreases of more than \$100,000 were shown under electric wiring, \$192,211; incendiary \$121,436; sparks from locomotives \$224,513; and smoking \$810,452. The four causes resulting in the largest losses were, unknown \$2,371,675, torches \$929,601, company fires on adjacent property \$922,401, and heating appliances and flues \$811,576. A detailed account of the losses is shown in the accompanying table. These statistics were presented at the annual meeting of the Railway Fire Protection Association which was held at the Morrison hotel, Chicago, on October 20-22 with an attendance of 200. President J. R. Peters of the Pennsylvania presided.

NUMBER OF FIRES AND AMOUNT OF LOSS SHOWN BY CAUSES ON 83 ROADS

	1924		1923	
	No. fires	Loss	No. fires	Loss
1. Adjacent property (company fires)	751	\$922,401	587	\$719,877
2. Ashes and hot cinders	255	27,120	330	84,304
3. Boilers	22	56,071	15	8,981
4. Careless burning of rubbish and material	209	85,598	149	75,235
5. Explosives	34	65,034	19	55,637
6. Electric wiring	197	411,618	153	603,829
7. Fireworks	4	1,044	10	4,771
8. Forest fires	81	84,829	70	174,775
9. Fuel oil systems	30	107,861	30	51,185
10. Friction, hot boxes, brake shoes	135	373,659	115	38,249
11. Fuses	19	2,541	15	14,024
12. Gasoline, oils, etc.	54	82,111	80	36,201
13. Heating appliances and flues	1,115	811,576	998	528,716
14. Incendiary	120	188,243	161	309,679
15. Lighting appliances	130	52,756	134	58,745
16. Lightning	59	40,523	48	18,823
17. Locomotives, sparks from	1,136	401,620	1,292	626,133
18. Locomotives, hot coals from	448	100,546	554	154,803
19. Lading, charcoal, lime, etc.	185	51,630	136	40,621
20. Matches	66	45,618	73	23,916
21. Smoking	411	722,613	472	1,533,065
22. Spontaneous combustion	271	340,276	254	155,367
23. Tire heating	4	13,633	38	14,153
24. Torches	256	929,601	202	294,563
25. Tramps	531	462,404	332	423,829
26. Unknown	1,477	2,371,675	1,521	1,769,841
27. Waste and wooden lockers	14	5,592	34	52,278
28. Wrecks	84	700,971	115	529,233
29. Miscellaneous	511	537,760	458	600,275
Total	8,609	\$10,049,936	8,395	\$9,001,122

Almost one-half of the fires reported, or 4,177, occurred on rolling equipment where the damage amounted to \$2,655,140, as compared with 3,949 fires and damage amounting to \$2,968,725 in 1923. A total of 463 fires

occurred in shop buildings and resulted in a loss of \$1,163,418 to buildings and contents as compared with 516 fires and a loss of \$1,078,173 in 1923. Sixty-nine fires totalling \$1,397,894 took place on piers, bulkheads, wharves, etc., as compared with 47 fires and a loss of \$75,572 last year. Two hundred and sixty-six fires were reported in merchandise in transit totalling \$1,014,235, as compared with 297 fires and damage amounting to \$582,031 the previous year. Statistics in detail are shown in the accompanying table.

	1924		1923	
	No. fires	Loss	No. fires	Loss
A. Passenger and freight stations and contents.....	632	\$890,464	575	\$1,792,817
B. Cotton platforms.....	38	19,072	35	8,616
C. Automobile platforms.....	3	701	6	1,210
D. Section houses.....	303	104,573	264	132,579
E. Miscellaneous station buildings.....	313	115,686	277	177,343
F. Hotels, eating houses and contents.....	101	107,740	99	104,319
G. Water stations, pump houses, etc.....	154	99,485	144	84,177
H. Oil tanks and contents.....	5	2,108	23	8,785
I. Coaling stations.....	78	205,272	83	238,226
J. Elevators.....	7	612,015	3	646
K. Stock yards, pens, etc.....	32	7,728	36	21,640
L. Shop buildings and contents.....	463	1,163,418	516	1,078,173
M. Storehouse buildings and contents.....	80	187,001	112	867,247
N. Piers, bulkheads, wharves, etc.....	69	1,397,894	47	75,572
O. Bridges, trestles, etc.....	687	305,353	809	253,316
P. Rolling equipment.....	4,177	2,655,140	3,939	2,968,725
Q. Floating equipment.....	8	24,727	4	13,458
R. Merchandise in transit.....	266	1,014,235	297	582,031
S. Cotton, lading liability.....	169	526,541	97	201,558
T. Cotton, spark liability.....	10	29,224	14	14,138
U. Miscellaneous.....	1,002	576,403	1,015	376,536
V.....	4	1,595	.....	.....
W.....	3	2,030	.....	.....
X.....	5	1,523	.....	.....
Total.....	8,609	\$10,049,936	8,395	\$9,001,122

The report of the committee on the rules and requirements for the storage and use of fuel oil and for the construction and installation of oil-burning equipment, of which E. L. Tallichet, inspector of fire protection of the Southern Pacific, is chairman, first considered the construction, location and capacity of tanks underground, above and inside buildings, general requirements for piping, the heating of tanks, burners, dampers and pumping systems. This part was taken from the requirements of the National Fire Protection Association and was accepted without comment. The latter portion of the report, dealing with portable torches and burners, power houses and large installations, and rivet or portable forges received a great deal of comment. One of the leading questions discussed was the advantages of pressure over vacuum systems. The report was accepted as a progress report and was referred back to the committee with instructions to make the latter portion conform in all respects to the requirements of the National Association.

W. F. Steffens, chief supervisor of fire protection of the New York Central, and chairman of the committee on fuel oil on water, gave a progressive report in which he described a decrease in the nuisance of oil on water which befoils piers and causes fire risk. He reported that progress is being made in convincing ship owners that the oil can profitably be separated from the water and used. The methods employed for separation were also described. Several companies which are now engaged in reclaiming oil from the water found in the vessels' bilge and in storage tanks do so by either purchasing the mixture or by contracting for the work of reclaiming.

The committee on forms, of which W. C. Neely of the Norfolk & Western is chairman, reported that insurance companies are now issuing all necessary forms, and during the past year he had received no requests for forms by members. The committee was discontinued.

The report of the special committee on pyroxylin lacquers and finishes, of which de Witt Rapalje, fire prevention adviser of the Raritan River, is chairman, described the hazards of the use of these finishes and gave warnings to their users. Attention was called to the investi-

gations and laboratory tests in the fire dangers of pyroxylin lacquers being carried on by the Underwriters' Laboratories, Chicago, and the Associated Factory Mutual Laboratories of Boston, Mass. Reference was also made to a pamphlet issued by the National Fire Protection Association entitled "Pyroxylin Finishes" which contains information on safeguarding the fire hazards of these processes in manufacturing plants and automobile refinishing shops. The report was accepted as a progress report.

De Witt Rapalje, also chairman of the committee on fire alarm signalling systems, made recommendations for the installation, maintenance and testing of manual fire alarm systems and auxiliaries, automatic sprinkler alarm systems, telephone combination systems, fire whistles, bells and other sounding devices for summoning brigades, and municipal fire alarm boxes. This report did not differ much from that of last year.

The morning of the second day was devoted to the presentation of the association's hand book, an encyclopedia of railway fire protection subjects, by T. E. Chapman, of the Norfolk & Western, chairman of the hand book committee. It was followed by a discussion of the several chapters which resulted in recommendations for minor changes. The book will be published in loose leaf form and will contain standards of practice for fire protection as recommended by the association, in addition to a report of the meeting. In the afternoon the members visited the Underwriters' Laboratories where the work of this organization was described by Dana Pierce, president, and tests on equipment were made for the visitors.

Franklin H. Wentworth, secretary of the National Fire Protection Association, addressed the meeting on the problem of attack. He urged the members of the association to analyze each fire to determine the cause and then direct the attack at that point. He also recommended that the attack be definitely planned before proceeding.

Eugene Arms, manager of the Mutual Fire Prevention Bureau, spoke on the Prohibition of Shingle Roofs Under Leases of Railroad Property and asked that definite action be taken toward their elimination. He described the disadvantages of shingle roofs and supported his charges with cases. F. H. Wentworth supplemented Mr. Arms' remarks by describing the results of tests on shingle roofs made by the Underwriters' Laboratories.

The elimination of the bottom valve on tank cars and the unloading of tank cars from the top was discussed at length. W. F. Steffens commented on the item "unknown" which contains fires whose damage amounted to \$2,371,675.

The Mutual Fire, Marine and Inland Insurance Company awarded prizes for the two best papers on "The Value of Employees Organized and Drilled in Private Fire Brigades for the Protection of Railroad Properties and Utilized in the Thorough Inspection of the Same at Frequent Intervals." Past presidents of the Railway Fire Protection Association acted as judges. The winners were E. J. Tallichet, of the Southern Pacific, who won first prize, and E. Williamson of the Southern at Atlanta, Ga., who won second prize.

Officers elected for the ensuing year were president, C. C. Michie, assistant secretary of the Chesapeake & Ohio; vice-president, G. S. Giles, fire protection engineer of the Union Pacific; and secretary-treasurer, R. R. Hackett, chief inspector of the Baltimore & Ohio. The new members of the executive committee, Class of 1928, are: W. S. Topping, Bureau of Explosives; W. H. Klinsick, C. B. & Q.; W. D. Keeson, Canadian National. The members voted to change the annual meeting to the second Tuesday in October so as not to conflict with the meeting of the American Railway Bridge and Building Association, to which some of the members belong.



# George M. Basford Dies Suddenly

*Enthusiastic advocate of better signaling, improved locomotive design and utilization, and more effective training of workers*

**G**EORGE M. BASFORD, head of the G. M. Basford Company, New York, dropped dead in the Jerome avenue subway station in New York, on Monday evening, October 26.

Mr. Basford exerted a constructive leadership in several important phases of railway activity. That he was able to accomplish so much was due to his tireless energy and the rare faculty of discarding unessential details and going to the very heart of a problem. Early in his railway career — and he has always been identified with the railway industry—he became interested in the development of signaling. He soon realized the possibilities of closer contacts between the men engaged in this work on the different railroads and was largely instrumental in starting the Railway Signal Association; indeed, he was familiarly known as the "father" of that organization. While he realized the great possibilities of safety in improved signaling, he had a keen appreciation also of its effect in increasing the capacity of a railroad, thus making possible more efficient and economical operation and he became a most forceful advocate in promoting an interest in the study of the economics of signaling.

Mr. Basford, from his boyhood, was especially interested in locomotive design and operation. His editorial work made it possible for him to broaden his studies in that direction and as far back as a quarter of a century ago he was recognized for his far reaching vision concerning the possibilities of improvement in the steam locomotive, as well as a greater utilization of the locomotive. He was one of the first to recognize many of what are now considered to be the most important improvements in locomotive design, and their adoption was greatly hastened in many cases by the enthusiastic and tireless way in which he promoted them. The railroads are in a large degree indebted to him for the steam locomotive as we have it today.

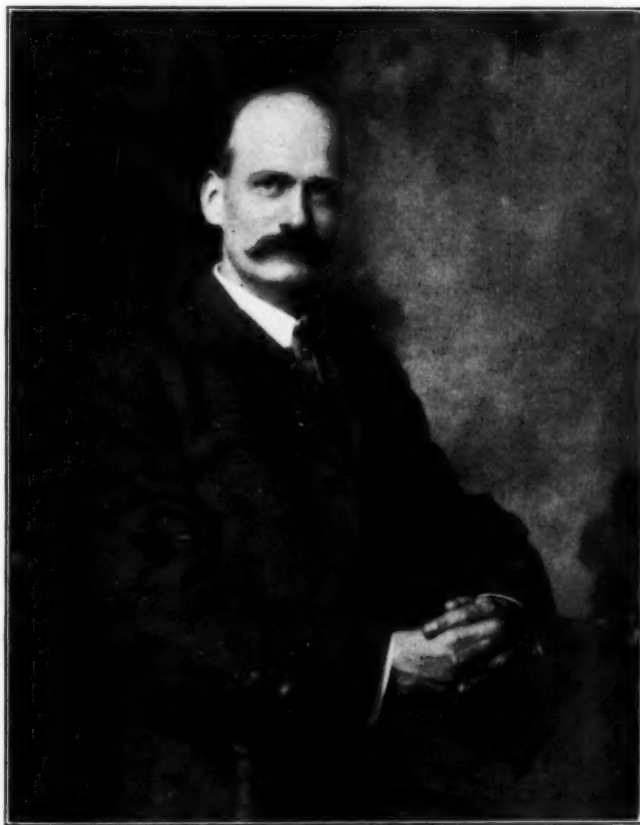
While Mr. Basford will always be recognized as an outstanding engineer, he was at the same time intensely human. Not many years ago mechanical engineers, or

engineers of any sort, rather assumed that matters relating to management and men and the human element were more or less outside their profession and placed an undue stress on materials and methods. George Basford was always impatient over such a narrow interpretation of engineering. While he recognized the technical side of the engineering profession, he was equally insistent that

proper attention must be given to the human element. He was deeply concerned about the providing of leaders to meet the larger problems of the future and to this end insisted that greater care be taken in selecting the men entering the railway field, and in seeing that they were properly placed and were given adequate training.

His paper before the 1905 convention of the American Railway Master Mechanics' Association, entitled, "The Technical Education of Railway Employees — The Men of the Future," was regarded by many as a masterpiece. It was not only directly responsible for the introduction of modern apprenticeship methods in the mechanical department on American railroads, but it had a distinct influence in getting many railroad officers to think through this question in relation to their own departments. More than this,

however, Mr. Basford was constantly on the look-out throughout his life for promising young men, who by words of encouragement and otherwise, could be made to recognize the possibilities in the railway field and to fit themselves for real places of leadership. It is fitting that his last address, made only ten days before his death, was in connection with the "Younger Men's Night" of the New York Railroad Club, a report of which will be found on another page. Because of his intense interest in the welfare of the young men and the fact that no sacrifice was too great for him to make if he could help them, he was requested by the Subjects Committee of the club to express appreciation at the close of the program to the seven young men who took part in it. This he did in his characteristic way; it was, indeed, a rare benediction, greatly appreciated especially by the young men. Mr. Basford was loved for his willingness and ability to help



George M. Basford

others. Many men occupying high positions—secured, often, with his help—in times of stress have turned to him for guidance.

After leaving editorial work his experience for several years was more along the lines of publicity and salesmanship, so that when he finally entered the field of technical advertising, he was rich in experiences which enabled him to make constructive and unique contributions to that field, which helped to place it upon its present high standard.

Mr. Basford was born in Boston in 1865, where he attended the public schools. He was graduated from the Massachusetts Institute of Technology in 1889, after which he entered the Charlestown shops of the Boston & Maine, later going to the Chicago, Burlington & Quincy as a draftsman at Aurora, Ill. He left the Burlington to take a position in the motive power department of the Union Pacific, and was connected with the test department of that road for some time, after which he entered the service of the Chicago, Milwaukee & St. Paul as signal engineer. Later he was superintendent of construction of the Johnson Railway Signal Company, was with the Union Switch & Signal Company for a short time, and then became signal engineer of the Hall Signal Company. In 1895 he became mechanical department editor of the *Railway and Engineering Review*, and in 1897 was made editor of the *American Engineer and Railroad Journal*, now the *Railway Mechanical Engineer*. In September, 1905, he was made assistant to the president of the American Locomotive Company. It was during this period that for a number of months he was called upon to give part of his time in helping to start the Railway Business Association, rendering exceedingly effectual and much appreciated service. In March, 1913, he became chief engineer of the railroad department of Joseph T. Ryerson & Son. Mr. Basford organized the G. M. Basford Company to handle technical advertising in March, 1916. At about this time he was also made president of the newly organized Locomotive Feedwater Heater Company and headed it for several years until it was taken over by the Superheater Company. He was also consulting engineer of the Lima Locomotive Works, Inc.

Mr. Basford always took a keen interest in railroad associations and clubs. He has given much time in assisting the officers and subjects committees of many of these organizations and has presented numerous papers before them, every one of which was prepared with the utmost care and thought, each word being properly measured and evaluated.



Painted by M. Greiffenhagen, R. A.

"Carlisle, the Gateway to Scotland," a Poster Printed in Color by the London Midland & Scottish

## Executives Meet

**R**ECOMMENDATIONS that consolidations of railroads should not be forced by legislative action, but should be worked out along economic lines by the railroads themselves, and that there should be a system of regulation of motor vehicles operating on public highways by the Interstate Commerce Commission, were approved at the regular meeting of the executive committee of the Association of Railway Executives in Chicago on October 23. Twenty-seven executives attended.

A long discussion followed when the subject of consolidation was brought before the committee. The executives emphatically favored a course of procedure in consolidation in which they will be free to adopt plans of their own, subject to the approval of the Interstate Commerce Commission, instead of being forced to accept plans drawn by the government or its experts. The position of the executives was expressed in the following statement which was issued by the chairman:

"The Executive committee, in view of the fact that both President Coolidge and Congress have committed the government to the policy of consolidation of railroad carriers engaged in interstate commerce, has considered the subject and reached the conclusion that if legislation on that subject is to be enacted at the approaching session of Congress, it should provide for a permissive instead of a compulsory system, subject to the approval of the Interstate Commerce Commission. It also was agreed that federal methods and machinery should be created to carry into effect any consolidation which is approved and permitted by the commission."

The discussion of the question of competition from motor vehicles operating on the highways, gave evidence that the executives are aware that the inroads on railway revenues from such competition are becoming serious. The executives strongly favor regulation of highway competition by the Interstate Commerce Commission. It is pointed out that there is no nation-wide system of regulation for the motor carriers, and buses and trucks are being operated in many states entirely without regulation. A committee was appointed to confer with a similar committee recently appointed by the National Association of railroad and Utilities Commissioners and with representatives of street and interurban railroads to formulate a system for regulating highway traffic.

The members of the committee are W. W. Atterbury, Pennsylvania, chairman; P. E. Crowley, New York Central; E. J. Pearson, New Haven; Carl R. Gray, Union Pacific; Hale Holden, Burlington; A. D. McDonald, Southern Pacific, and W. L. Mapother, L. & N.

At the conclusion of the association meeting, a meeting of the board of directors of the American Railway Association was convened, which approved designs for the double sheathed steel box car, adopted by the Mechanical Section of the A. R. A. last June and described in the *Railway Age* of June 13, page 1446 and of June 20, page 1566. The approved standard box car will be of either 40 or 50 tons capacity, double sheathed and with steel frames. The Mechanical Division of the association was authorized to prepare similar standard designs for automobile, stock, hopper, and gondola cars.

The following were elected members of the Executive Committee of the Association of Railway Executives: Fred W. Sargent, president, Chicago & North Western, to succeed W. H. Finley, resigned; A. D. McDonald, vice-chairman, Executive Committee, Southern Pacific, to succeed the late Julius Kruttschnitt; W. W. Atterbury, president, Pennsylvania, succeeding Samuel Rea, retired; and E. F. Carry, president, Pullman Company. Mr. Rea was elected an honorary member of the Executive committee.



# Great Northern Train Control Petition Denied

## *I. C. C. refuses to set aside order requiring second installation—Three commissioners dissent*

THE Interstate Commerce Commission, in a report dated October 10, made public on October 22, has denied a petition filed by the Great Northern, requesting that the commission vacate, in so far as that road is affected, its second train control order (January 14, 1924), which required the Great Northern to install, on or before February 1, 1926, an automatic train-stop or train-control device on one full passenger-locomotive division between St. Paul, Minn., and Glasgow, Mont.

Incidentally the case brought out another sharp debate among the commissioners regarding the method by which the commission should exercise its train-control powers. Commissioner McManamy wrote a dissenting opinion criticising the construction of section 26 of the interstate commerce act, and its administration by the commission. Commissioner Hall dissented and expressed general accord with the views expressed by Commissioner McManamy as well as the opinion that the relief asked by the Great Northern should be granted; and Commissioner Eastman also dissented. Commissioner Esch wrote a concurring opinion in reply to the views expressed by Mr. McManamy and Commissioners McChord and Cox concurred in his expression.

On the same day the commission had voted against entertaining a blanket petition from the railroads asking a postponement of that part of the second order requiring a second installation on the roads included in the first order, either indefinitely or until a date certain beyond July, 1926; although it left the way open for the consideration of petitions filed by individual roads on the facts in each case.

The Great Northern was one of the roads named in the first order, which required it to make an installation between St. Paul, Minn., and Minot, N. D. Later this was amended to permit such installation between Minot and Williston, N. D., and the time for completing the work was extended to July 1, 1925. Pursuant to the second order the road selected the division between Williston and Wolf Point, Mont., the latter point being about 106 miles west of Williston, but later it filed a petition asking to be relieved. The majority report "by the commission," is as follows:

### Majority Report

The Great Northern contends that installations of automatic train-control devices on its railroad are not justified because of (1) the physical characteristics of the road; (2) the character and small volume of business handled; (3) the small risk of danger to passengers and employees; (4) the freedom from accident of such character as automatic train-control devices would prevent (5) its financial condition; and (6) the additional safety now provided and being provided by installations of automatic block signals.

It may be said that testimony upon these specific matters was presented by the Great Northern in the hearings held in connection with the first order.

The line between Williston and Wolf Point is low grade, the maximum grades being 0.4 per cent. The country is generally flat and the alignment of the road is generally straight. The maximum curvature between the two termini is 3 deg. The percentage of tangent is 87 per cent and the average amount of curvature is 12 deg. per mile. The daily train service in each direction consists of one local and two through passenger trains, one

mail and express train, and an average of three freight trains.

In the period from about September 15 to November 15, when fruit, grain, and stock are moving in large volume, the average number of freight trains is six in each direction per day. Due to seasonal fluctuations there are periods when there is comparatively little traffic moving over the line.

The Great Northern operates 8,250 miles of road of which 4,020 miles are designated as main line and 4,230 miles as branch line. The distance from Minot to Williston is 120.3 miles and from Williston to Wolf Point 106.7 miles. With the exception of about 26 miles the line is single track between these points. It will shortly be fully equipped with automatic block signals. On the line between Williston and Wolf Point eight freight engines, five passenger engines, and two switch engines are operated in regular service. During the month of October, 1924, the month in which the greatest number of trains of all kinds were operated, 663 trains moved, in whole or in part, over the portion of road between Williston and Wolf Point. The daily average of their movement for the month was eight passenger and 13 freight trains. The average speed was 31.6 miles an hour for passenger trains and 11.7 miles an hour for freight trains. The maximum speed allowed is 55 miles an hour.

It is contended by the carrier that the character and number of trains operated and the character of its road indicate that the risk of accident is small. Since November 15, 1911, our bureau of safety has investigated 11 head-end and rear-end collisions that occurred on the Great Northern. These accidents caused the death of 24 persons and the injury of 95. They occurred on portions of the line where there were no automatic block signals. Some of the accidents were of the character that automatic train-control devices are designed to prevent. In the portion of road between Williston and Wolf Point, however, no accidents were reported in the years 1920, 1921, 1923, and 1924. On November 1, 1922, at Atkinson, Mont., on this portion of the road, there was a rear-end collision between two freight trains, which caused damage to railroad property amounting to \$2,022. No personal injury resulted.

The Great Northern states that its passenger business has been decreasing in the past few years. Evidence of this was offered in exhibits showing the total number of passenger-miles and passenger-train miles for the years 1916 to 1924, inclusive. The passenger-miles, expressed in thousands, were 608,621 in 1916, as compared with 478,267 in 1921, 450,653 in 1922, 460,208 in 1923, and 422,372 in 1924. The years 1917, 1919, and 1920 show an increase over 1916. The passenger-train miles, for the same years were, in thousands as follows: 12,040 in 1916; 11,605 in 1921; 11,230 in 1922; 11,617 in 1923, and 11,530 in 1924. The year 1917 showed an increase but 1918, 1919, and 1920 all showed a decrease.

The carrier further contends that the road is comparatively new and that much remains to be done to protect the line against washouts, land slides, snowslides, and damage from floods. It states that there are isolated heavy curves which are dangerous and ought to be eliminated. There are also, the carrier states, many timber bridges that should be replaced and certain unsafe portions of the road-bed that need to be taken care of. Most of these troubles are experienced on the line west of Williston. There are about 100 miles of timber bridges on respondent's line and many old steel bridges that are unsuited to carry the heavy power now in use. In the section between Williston and Havre, 250 timber bridges have been replaced with concrete structures, and it is expected that all the remaining ones will be replaced in about two more years. It is also planned to strengthen or replace 20 steel bridges on this section by 1927.

The Great Northern shows that it has more than doubled its automatic block signal installation since March 1, 1920. On that date it had 805.3 road miles and 1,169.3 track miles equipped. By October 1, 1925, with work already completed and work now under way or authorized, the total miles of installation of these signals will be 1,895.4 road miles and 2,464.6 track miles. Most of the block signals have been installed on the main line west of Minot, so that when the 1925 program is completed the entire main line from Minot west to Seattle will be fully equipped. East of Minot a large portion of the line is not equipped with automatic block signals. The carrier, therefore, urges that such signals ought to

WASHINGTON, D. C.

be installed on this section east of Minot before further automatic train-control installations are required. It appears that the Great Northern does not regard favorably the possibility of installing automatic train-control devices without the use of wayside signals. Progress, however, is being made by other roads with respect to this possibility.

The Great Northern is now installing under the first order an automatic train-control device of the intermittent magnetic-inductive type between Minot and Williston, 121 miles. Thirty-four locomotives will be equipped. To date roadway apparatus has been installed on 27 miles of road, and six locomotives have been equipped.

It is estimated that the cost of installing a plain automatic stop of this type of device between Williston and Wolf Point, with manual control permitting an engineer to forestall an automatic stop, will be \$89,250. The distance between these points, as before stated, is about 106 miles. Thirty locomotives will have to be equipped. The total cost for locomotive equipment installed is estimated at \$42,000, at an average cost per locomotive of \$1,400. The total cost of necessary roadside automatic-stop apparatus installed is estimated at \$47,250. The average cost per mile of road, single track, is stated to be \$450. The average total cost per mile of road, including the cost of locomotive equipment, according to this estimate, is \$850. An automatic block-signal system is partially installed on this section and should be completed, the carrier states, by August 15, 1925. No modification of the system will be required for the installation of automatic train control.

The carrier also invites attention to the fact that it has not, since March 1, 1920, earned the fair return of 5.75 per cent upon the value of its property as tentatively found by us.

The distance from Williston to Wolf Point, 106 miles, is 1.28 per cent of the total mileage operated by the Great Northern, and 2.63 per cent of the main-line mileage. The total miles of installation required of the Great Northern under the two orders in this case is 227 miles, which is 2.75 per cent of the total mileage operated and 5.64 per cent of the main-line mileage.

The character and number of trains operated over the line of the Great Northern west of Minot warrant the installation of some form of automatic train-stop or train-control device. It is pertinent to state here that an elaborate, complicated, or expensive system of train control is not required to meet the specifications of our order. The purpose of such devices, briefly stated, is to protect a train from accidents by stopping the train automatically when the engineman fails to act. The installation of a reliable device to do this in connection with a system of automatic block signals as in the case of the carrier here, is not, in our opinion, either difficult or unduly burdensome in view of the protection that will be accorded employees and passengers. The reasons set forth by the Great Northern for requesting relief from the second order are not sufficient. It is, of course, recognized that improvements in the roadbed, bridges, and so forth, must be made but at the same time there must be progress in methods of protecting trains from the kind of accidents which, as our records show, are caused by failure to observe and obey operating orders or signals.

We are of the opinion that the request of the Great Northern that the order of January 14, 1924, be vacated and set aside in so far as it concerns that carrier, should be denied, and we so find.

#### McManamy Says Mistake Made in Order

Commissioner McManamy, in his dissenting opinion, said, in part:

After a study of the testimony in this case and of the general operating conditions on this railroad, I am convinced that the action of the majority is not supported by anything of record and is based upon a misconception of the intent of Congress.

The provisions of the act clearly indicate that the object sought was not the installation of any particular device or type of device, but the protection of life and property; therefore, we were given discretionary power with respect to the location of installations and the character of the devices to be installed. But this discretionary power with respect to location of installations and character of devices is not without limitation. Taking into consideration the purpose of this law it is evident that before requiring an installation we must first by investigation determine the necessity for such safety devices on the particular railroad or part of railroad under consideration and the character of the devices needed. In other words, we must make an investigation to select the railroads or parts of railroads where the physical characteristics and general operating conditions, including traffic density as expressed by the frequency of trains, are such that in the interest of safety such installations are reasonably necessary. The purpose of thus restricting our authority was obviously to require us to ascertain by investigation the need for safety devices on the railroad or part of the railroad under consideration, and also the type of device, whether train-stop, train-control, or other safety device, which would be best suited to the conditions existing on the particular line and which would provide adequate safety to the traveling public and the railway employees.

The history of this case is as follows: Under date of January 10, 1922, we served upon 49 carriers selected on the basis of their average annual earnings, an order to show cause why each of them should not be required to install automatic train-stop or automatic train-control devices upon a full passenger-locomotive division. By order entered June 13, 1922, termed our first order, we required the 49 carriers included in our order of January 10, to install, in accordance with specifications, automatic train-stop or train-control devices upon a passenger-locomotive division, included between points specified in the order. On January 14, 1924, we issued a further order, referred to as our second order, requiring 47 of the 49 carriers to install such devices upon an additional passenger-locomotive division. The Great Northern was included in both orders. At the hearing on our first order this carrier introduced testimony tending to show that it should not have been included in this order and at a subsequent hearing it offered testimony in support of its petition to be relieved from the requirements of our second order. To properly weigh this testimony it is important to understand the method used in selecting the carriers included in our first order and later in our second order. Having in mind the object sought to be accomplished by the law and the purpose to be served by the devices required to be installed, it might reasonably be assumed that the selections would be based primarily upon such factors as (a) traffic density measured by the number of trains; (b) speed of trains; (c) operating conditions and practices with particular reference to speed and headway or period between trains; (d) physical characteristics of roadway and surroundings with reference to grade, curvature, etc., and (e) number and character of accidents and their causes. Careful consideration of these matters would make possible an order requiring a type of device adapted to the operating conditions on the road under consideration and a reasonable approximation of the benefits which might be expected from the installation.

#### Selection of Carriers Based on Earnings

But the selection of carriers to which our first order applied was not based on these factors. It was evidently assumed that the same order and specifications would meet the requirements of 49 carriers in all parts of the country under all sorts of operating conditions, therefore the basis of the selection was as follows: Prior to the hearing carriers whose average annual earnings during the previous three years exceeded \$25,000,000 were selected, and notwithstanding the evidence presented at the hearing by the carriers' committee and by individual carriers, the selection was not changed except in minor respects. It is conceded that earning capacity is an important factor to be considered before entering an order requiring capital expenditure of millions of dollars. Other factors, however, should also be considered before requiring the installation of train-stop or train-control devices, and even if a carrier is financially able to make the expenditure the installation should not be required until we have first ascertained by investigation whether the device is needed. When such fundamentals as frequency and speed of trains, character of traffic, and physical characteristics of the roadway tending to indicate the need for the devices are disregarded, an incongruous situation is sure to result, and that is what happened in this case.

In selecting the Great Northern as one of the carriers required to install automatic train-stop or train-control devices, it is evident that we were not guided by any of the factors indicating a need for such devices. The frequency and the average speed of trains are both low; the operating conditions and practices are not such as to create unusual hazard; the physical characteristics of the division in question are unusually favorable; and there have been no accidents on this division which might have been prevented by the devices required. Neither can it be urged that this installation is of value for experimental purposes because it is simply an extension of the same device being installed under our first order over a division with similar physical characteristics, therefore no new problems are presented. The reasons why the selection was not based on factors which ought to be controlling in train-control installations need not be considered here. It will suffice to say that obviously in this case such factors did not control, therefore a mistake was made which I believe ought now to be corrected.

This division is immediately west of the one upon which under our first order a complete divisional installation is being made, and when completed the two installations will form a continuous section from Minot, N. Dak., to Wolf Point. This section is fairly representative of the heaviest traffic zones upon the main line of the Great Northern, as it is immediately west of the junction of the three main lines leading from the Twin Cities and from Duluth to the Pacific Coast, and therefore no serious criticism has been or can be made as to the selection of the division.

The uncontradicted testimony is that this division is a low-grade line. The country is generally flat. Our records show that this carrier has but 7.3 train miles per mile of road per day and that it stands one hundred and seventeenth on a list of railroads arranged in the order of greatest number of trains per mile of road per day. \* \* \*



### Greater Need for Block Signals

The Great Northern operates 8,250 miles of road of which 4,020 miles are designated main line. It has installed 1,895 road miles of block signals, the remainder of the line being without this protection. At the hearing on its petition for relief testimony was introduced only by representatives of the carrier and by representatives of the employees, and they were in agreement that greater protection would be afforded by an equal expenditure for extending the block signal system over the remainder of the line, and strongly urged that such a policy be followed. The record is barren of testimony showing the need for the installation of train-stop or train-control devices upon this or any part of the line of this carrier. An order, such as this one, which is contrary to all the facts of record, approaches dangerously close to being a finding without evidence which the Supreme Court in the *Orient Case*, 265 U. S. 274, held was beyond our power. If we do not give consideration to the facts disclosed at the hearings, why hold them?

I think it is important that the effect of our order upon the general railroad situation should be considered. In the Northwestern states through which this carrier operates, agricultural products comprise an important part of the tonnage of the carriers. Freight rates on these commodities are said to be especially burdensome. We are now, by order of the Congress, conducting an investigation to determine whether rates on agricultural products can be reduced without reducing the revenues of the carriers below the point at which they may successfully and efficiently operate. It is becoming increasingly evident that, considering the present cost of capital, material, and labor, general reductions in freight rates must come, if they come at all, from greater efficiency and economy in operation. If anything is to be accomplished in this direction not only operating expenses but capital expenditures must be closely watched because the burden of any increase in either ultimately rests on the man who pays the rates. Excessive or unnecessary expenditures resulting from our orders in no way differ from such expenditures voluntarily made. Instead of requiring such expenditures it would be in the public interest to prevent them.

The report of the majority states that the estimated cost of this installation will be \$850 per mile, or a total for the 106 miles of \$90,100. This is lower than is usually estimated for such installations, but, be that as it may, it is generally conceded that the cost of train-control or train-stop devices is two or more times that of automatic block signals and the difference in the cost of maintenance is even greater. In fact we are even now, with the limited installations which exist, suggesting to the carriers the need of rather elaborate performance records and of a force of highly skilled specialists to test, repair, and maintain the special and somewhat delicate appliances and adjustments of the train-control devices. Our order therefore imposes not only the burden of providing the original capital, but also its necessary carrying charges, and the indefinite, but admittedly large, cost of maintenance.

Primarily the question here involved is the promotion of safety in train operation of which there is no more ardent advocate than I. For this reason I cannot disregard what I believe to be the basic principle which should govern all expenditures whether for the installation of safety devices or for efficiency, which is that such expenditures should be so regulated as to secure the greatest possible return per dollar spent. The conclusion of the majority is not in accord with that principle. It disregards the facts set forth in the record that nowhere are operating conditions more favorable and on few if any Class I railroads is traffic less dense; that only 21 per cent of the mileage is equipped with block signals; and that all accidents investigated by our Bureau of Safety occurred in territory not equipped with automatic block signals. If this expenditure is to be required, I think a clear showing has been made that greater safety will result from an extension of the automatic block-signal system, upon which train control can be superimposed if and when conditions warrant, than from the same amount of money spent at this time in the installation of the more complicated and expensive train-control devices required by our order.

The concurring expression of Commissioner Esch is largely a defense of the merits of train control which have not even been attacked. Regardless of statements to the contrary, my dissent is addressed to the issues and is based on the record in this case. I am not willing to obscure either by indulging in a discussion of the merits of train control in the abstract. In my concurring expression issued in connection with our report of July 18, 1924, 91 I. C. C. 426, I said "I am wholly in sympathy with the purpose of this section (26) properly construed and administered in a practical way." I adhere to that position and this dissent represents a further effort to have section 26 so construed and administered.

### Commissioner Esch Defends the Commission's Orders

Commissioner Esch in his reply to Commissioner McManamy said:

This concurring expression is made necessary in what may otherwise be regarded as a simple case by the dissenting expression which ranges far afield from the record and the restricted issue before us. Commissioner McManamy advocates automatic block signals and, therefore, believes that a clear showing has been made in this case that greater safety will result from an extension of the block-signal system. It is equally clear that automatic block signals are installed by railroads primarily as a means for securing greater track capacity so that more trains may be run and at greater speeds. Our accident investigations show too plainly for argument that these signals do not provide adequate safety. If the record will support, as the dissenting expression admits it does, a finding that automatic block signals are necessary on this line, it equally supports a finding that a device should be installed automatically to enforce obedience to such signals which, essentially, is all that our order requires. It is not a fact that the action of the majority is not supported by anything of record, nor is it a fact that the record is barren of testimony, as the dissenting expression so strenuously insists.

There is much said in the dissent, also, upon the subject of greater efficiency and economy of operation. Although not directly so stated, it suggests that the expenditure in this case of approximately \$90,000 to secure safety in train operation on 106 miles of single-track road so as to prevent train collisions, which may cost many times this sum for death and injury claims, is a waste of money and may add to the burden borne by freight shippers. It will be generally conceded, we think, in the light of the knowledge gained in our investigations of train collisions for over 15 years, that \$90,000 is a small sum to expend to secure travelers and employees from death and injury and that economy may be sought with greater profit in the numerous other available directions in the large field of railroad operations.

The dissenting expression takes the majority to task for an alleged misconception of the intent of Congress, as expressed in section 26. That section deals specifically with automatic train-stop or train-control devices. Its purpose is clearly expressed. We can see no way in which it could be or has been misconceived.

At the outset, it should be understood that we are dealing with the second order only in this case as it affects the Great Northern and nothing else. If a vigorous attack in the form of a dissent is to be made upon the whole policy the commission has pursued for the past 18 years in the matter of automatic train-control devices, the place to do it is not in this limited case but upon the entire record with a review of all the evidence.

Much of the dissent is based upon a misconception of the investigations that preceded our first order and the method of procedure adopted in the hearings. It conveys the impression that the commission has abused the discretionary power vested in it and has made but a cursory investigation as to the need for automatic train-stop or train-control devices upon the 49 railroads. The history of the case set forth in the dissent begins with the culminating act of the commission's long period of investigation and research and ignores completely the events and records of that period which decided the commission to take decisive action to put an end, as far as lay in the power granted it under section 26, to the disastrous collisions which year after year it had been called upon to investigate. A history of this case which ignores this is like a history of the Civil War that begins with Appomattox Court House and ignores what preceded it.

### Physical Characteristics Considered

The assumption that the commission issued its order of June 13, 1922, upon the sole ground that the roads named were best able to pay for the installations is wholly incorrect. The commission, as a matter of course, bore in mind the very things the dissent lays down as fundamental, i. e., traffic density, speed of trains, operating conditions, physical characteristics, and number and character of accidents, their causes and the means provided to avoid them. The portions of the lines were designated because of these conditions, and main lines between important cities carrying the heaviest traffic of the particular roads were named. The order to show cause entered January 10, 1922, was the first formal step in the proceeding. Commissioner McManamy was not a member of the commission then. That order was thoroughly considered by the commission before it was served. We could have issued a general order directed to all roads; we could have selected only eight roads, or a dozen, or any number; but the procedure would have been the same. All these things were considered. The hearings upon that order were held for the very purpose of permitting the carriers to produce any and all evidence with respect to their general situation and the situation upon the particular section of road we designated. The hearings were held before division 1. Any one who reviews the record in that proceeding can not escape the conclusion that the carriers took full advantage of the opportunity afforded them to present operating data, traffic densities, speed of trains, financial obligations, and all the other fundamental and primary facts. The Great Northern, now before us, as did many other roads, gave detailed evidence of the conditions upon its

road, of traffic, number and speed of trains operated, grades, alignments, and everything else that was in any way pertinent. It is inconceivable that these carriers, the most prominent and important ones in the country, aided by able counsel, would overlook anything that would tend to show cause why they should not be required to make the installations. The record shows they did not. Thirty-seven witnesses for the carriers, consisting of executive, operating, and signal officers, gave testimony, both as to the general situation and as to particular roads. Our bureau of safety placed on record, in 37 exhibits, all that had been done and recommended by the commission in its 14 years or more of investigation. It put in evidence a list of 518 collisions investigated from July 1, 1911, to March 31, 1922, in which 1,807 persons were killed and 10,287 were injured. It made a separate list of 80 collisions that occurred upon automatic-block-signalized lines due to the failure of enginemen to observe or be governed by signal indications. These collisions killed 416 persons and injured 1,837. There were also put into the record a summary of the collisions which occurred in automatic block-signal territory on the 49 carriers. There were 75 of these. A copy of the report of each of these accidents was put in evidence as one exhibit. These are only a few of the matters put into the record.

There never was a case before the commission before or since in which a more thorough study and investigation or a more thorough hearing upon all phases of the matter, fundamental and otherwise, was had than was had in this case.

It was not merely assumed that the same order and specifications would meet the requirements of the 49 carriers in all parts of the country and under all operating conditions. It was known that they would meet such requirements and the results of the installations made under them clearly show that they do so. The specifications with the exception of the permissive or manual-control feature, since restored, are practically identical with those adopted by the joint committee on automatic train-control of the American Railway Association in 1921, which, in turn, are based upon those of the automatic train-control committee of the United States Railroad Administration, the 1914 requisites of the American Railway Association, the 1914 requirements of the Railway Signal Association, and the 1910 requisites of the block-signal and train-control board appointed by this commission in 1907. See *Automatic Train-Control Devices*, 69 I. C. C. 258, 275. These are and are intended to be, general functional requirements designed for general application to all devices under all operating conditions. There was no assumption about it. These specifications and requirements were the product of operating and signal men based upon their knowledge of operating conditions. \* \* \*

There is room, of course, for differences of opinion in this case as in any other as to whether these devices should be installed or not. There is no hard and fast definition anywhere as to when operating conditions, density of traffic, etc., pass from the non-dangerous state to the dangerous state. Operating men have been rather vague as to this in their testimony. They differ considerably. Many believe, for example, that even the heaviest traffic lines in the country do not need automatic train-stop or control devices if automatic block signals are installed. But the numerous collisions that have occurred upon lines so protected show that operating men are not infallible nor free from erroneous reasoning. They have a natural tendency to be conservative and to cling tenaciously to what they have rather than to change their methods. \* \* \*

It is not significant that the representatives of the carrier and its employees are in agreement as to what would afford greater protection. Their view overlooks entirely the probable results of development of the train-control art which may result in a simplification, if not the total elimination, of expensive wayside signals.

The dissent also states that the record is "barren of testimony showing the need for the installation of train-stop or train-control devices." With this we wholly disagree. The record of this road is not free from collisions. No one can look into the future and say there never will be one. No one thought that the Twentieth Century Limited on the New York Central, the operation of which was protected by all the present-day safeguards, except automatic train control, would be involved in a rear-end collision, but it happened, and nine persons were killed and 35 injured. \* \* \*

Automatic train stop and train control devices are past the experimental stage, are practical, are needed, and have come to stay. They must be developed along with other apparatus now used by railroads.

#### Requirements Are Conservative

Our requirements as to the Great Northern are modest and conservative. This road has 8,250 miles of road, 4,020 of which are designated as main line. Since 1920, when section 26 was passed we have ordered this road to install automatic train-stop or train-control devices upon 120 miles under the first order and 107 miles under the second order, a total of 227 miles. The time for completion may, under the Delaware & Hudson decision, be considered as July 18, 1926. Thus, in the six years from the enactment of section 26 to the latter date we have required 2.7 per

cent of the total mileage or 5.6 per cent of the main-line mileage to be equipped. This is 45 hundredths of 1 per cent per year of the total mileage or 93 hundredths of 1 per cent of the main-line mileage. If we start from June 13, 1922, the date of our first order and consider only four years the corresponding percentages per year are respectively 68 hundredths of 1 per cent and 1.4 per cent. At this rate of progress it will take over 70 years to equip the main-line mileage alone. If this carrier should apply to a court for relief from our orders on the plea that they are unreasonable, or arbitrary, it would not get very far with the court upon this showing.

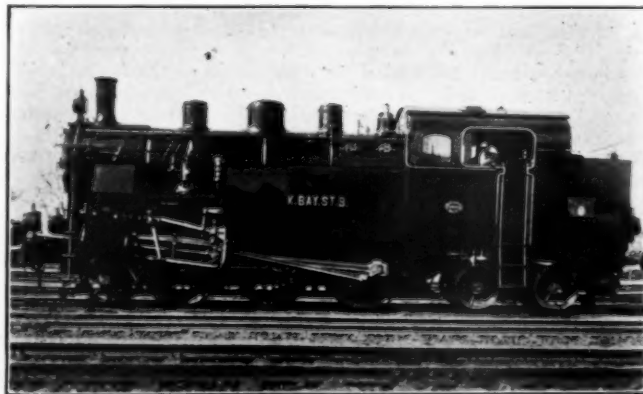
#### Cost of Train Control

The estimate of cost stated in the report is that given by the carriers for the installation of a plain automatic stop of the intermittent magnetic-inductive type with manual control now being installed under the requirements of our first order. The total cost for 106 miles of roadway and 30 locomotives is \$89,250, an average cost of \$850 per mile of road. The dissent states that it is generally conceded that the cost of train-control is two or more times that of automatic block signals and the difference in the cost of maintenance even greater. With this statement, we wholly disagree. The Norfolk & Western (October 2, 1924) estimated for 133 miles of road and 50 locomotives for a three-speed continuous control type of the most expensive kind the locomotive apparatus of which alone cost \$4,000 per engine as compared with \$1,400 per engine for the Great Northern device, that the total cost for the train-control device would be \$400,000 as compared with, automatic signals, \$950,000. Included in the latter figure is \$265,000 for a power transmission line. The cost of the standard-type automatic signals and accessories is \$685,000 as compared with \$400,000 for the train-control apparatus. If the whole cost of the power transmission line is charged against the train-control device, which would not ordinarily be the case, the total cost will be \$665,000 which is somewhat less than the automatic signals without any power line. [Other estimates are cited.] \* \* \* These facts show that the most complicated and expensive types of automatic train-control devices are, at most, not more expensive than standard automatic block signals and that the simple devices are much less expensive.

The dissent concludes that the question involved is the promotion of safety in train operation. That is true. We are all agreed upon that. In the face, however, of the fact that rear-end and head-end collisions on roads equipped with automatic block signals have occurred in the past and will occur in the future, we cannot conclude, as the dissent does, that greater safety will result from an extension of the block-signal system rather than automatic-train-stop or train-control. Our order does not require expensive and complicated devices. \* \* \* Based upon the record of the past, a fairly accurate estimate could readily be made of the number of collisions and the killed and injured therein that will appear in our reports for 1926. Since July 1 of this year, a new, yet old, cycle in this tragic history has, as a matter of fact, already begun.

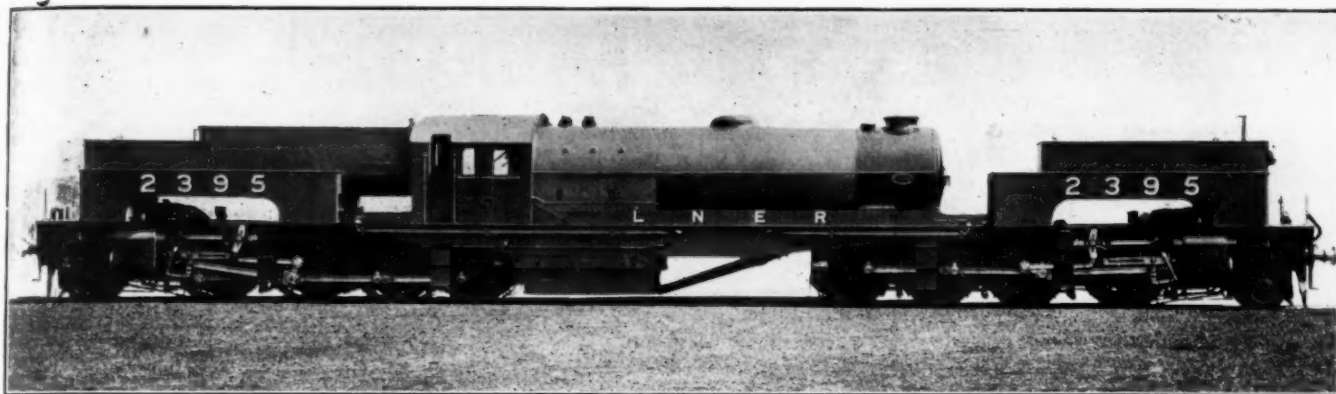
#### Expensive Devices Not Required

Our order does not require expensive or complicated devices. It is broad and may, as shown in this case, be complied with by a device costing, at the carrier's own estimate, \$850 per mile of road including the locomotive apparatus, or a total cost of \$90,000 for the 106 miles. One collision between passenger trains might cost the road two, three, or four times this amount depending upon how many people were killed and injured. For total death and injury claims ranging from \$30,000 to \$412,000 paid as the result of single accidents see *Automatic Train-Control Devices*, 69 I. C. C. 258, 272, 273.



A Bavarian Tank Locomotive





Garratt 2-8-0 + 0-8-2, six-cylinder locomotive built for the London & North Eastern Railway, England

## British Railway Acquires Garratt Six Cylinder Locomotive

*Wheel base 2-8-0 + 0-8-2—Develops a tractive force of 72,940 lb.—Weight in working order 398,804 lb.*

LONDON, England.

**T**HE London & North Eastern Railway, England, has recently placed in service a Garratt locomotive made up of two locomotive units, each unit having three cylinders, making a total of six cylinders. The wheel base is 2-8-0 + 0-8-2. This locomotive, the only one of its type yet placed in service, ranks as the largest and most powerful unit in Great Britain and the largest yet built in accordance with the Garratt form of construction.

The locomotive was designed for pushing service and to do the work of two or even three helpers at the rear of coal trains which weigh about 1,000 tons, on 2.5 per cent grades extending over two miles out of a total length of seven miles all of which is on a rising gradient.

The total weight of the locomotive is 398,804 lb., of which 322,308 lb. is supported by the two sets of driving wheels and is consequently available for adhesion. The diameter and stroke of the six cylinders is 18½ in. by 26 in.; the diameter of the driving wheels, 56 in. With 180 lb. steam pressure and 85 per cent cut-off, a tractive force of 72,940 lb. is developed.

When designing this locomotive, the question of properly distributing the weight had to be carefully considered owing to the light weight of the rails used in Great Britain. The locomotive weighs 398,804 lb. in working order, which exceeds that of the heaviest locomotive yet employed on any railroad in England. The load, however, is distributed over a considerable length of wheel base and the maximum load on an individual axle amounts to 41,093 lb. The front group of drivers supports a load of 158,984 lb., while the rear group supports 162,324 lb. The rigid wheel base of each group is 17 ft. 10½ in. and the total weight of the locomotive is distributed over an aggregate wheel base of 79 ft. 1 in. Thus, it will be seen that the weight per linear foot of the wheel base, a point closely associated with bridge stresses, is about 5,215 lb., which is not considered excessive in England, especially in a locomotive designed on the articulated principle and which, in spite of its great length, readily accommodates itself to curvature.

### Boiler and Equipment

A straight boiler with a round top firebox directly stayed is employed. It has a maximum diameter of 7 ft., is 12 ft. 11 in. between tube sheets and contains a firebox 8 ft. 5 in. long by 6 ft. 8 in. wide, which gives a heating surface of 223.5 sq. ft. The total heating surface of the boiler, including the superheater, is 3,518 sq. ft. The grate area is 56.5 sq. ft. The boiler barrel is 13 ft. long and contains 259 fire tubes, each 2 in. in diameter, and 45 superheater flues 5¼ in. in diameter.

The boiler carries a working pressure of 180 lb. and contains a superheater with element tubes 1¾ in. in diameter. The boiler is fixed with its center 8 ft. 6 in. above the level of the rails and the maximum height of the locomotive is 12 ft. 10 in.

Steam brakes are fitted to the driving wheels, with an addition of hand-screw brakes to the driving wheels at the firebox end only. Vacuum brakes are provided for the train.

Steam sanding apparatus is applied to the front and rear drivers of each group of driving wheels.

The tractive force of this locomotive is equal to two of the three-cylinder locomotives with eight driving wheels used on the L. & N. E. The cylinders, valve motion, etc., are all interchangeable between the two classes. The steam is distributed to the cylinders by piston valves actuated by the Walschaert gear, motion being transferred to the valve of the inside cylinder by the Gresley patented mechanism, similar to that employed on recently built three-cylinder locomotives in America.

The locomotive carries two tenders, one in the front and one in the rear. The front tender carries only water and has a capacity of 2,800 gal., while the rear tender carries both water and coal with a capacity of 2,200 gal. and seven tons, respectively. The greater portion of the weight of both of these tenders is supported by the driving wheels.

The following table contains additional dimensions, weights and proportions:

Railroad .....	London & North Eastern
Type of locomotive .....	Garratt, 2-8-0 + 0-8-2
Service .....	Freight pusher
Cylinders, diameter and stroke .....	Six 18½ in. by 26 in.
Valve gear, type .....	Walschaert
Cut-off in full gear, per cent .....	85
Weights in working order:	
On drivers .....	322,308 lb.
On front truck .....	38,884 lb.
On trailing truck .....	37,612 lb.
Total engine .....	398,804 lb.
Wheel bases:	
Rigid .....	69 ft. 1 in.
Total wheel base .....	79 ft. 1 in.
Pivot centers .....	40 ft. 8 in.
Wheels, diameter outside tires:	
Driving .....	56 in.
Front truck .....	32 in.
Trailing truck .....	32 in.
Boiler:	
Type .....	Straight round top
Steam pressure .....	180 lb.
Fuel, kind .....	Bituminous
Diameter, first ring, inside .....	84 in.
Firebox, length and width .....	8 ft. 5 by 6 ft. 8 in.
Height mud ring to crown sheet, back .....	7 ft. 4¼ in.
Height mud ring to crown sheet, front .....	7 ft. 6 in.
Tubes, number and diameter .....	259, 2 in.
Flues, number and diameter .....	45, 5¼ in.
Length over tube sheets .....	12 ft. 11 in.
Grate area .....	56.5 sq. ft.
Heating surfaces:	
Firebox .....	223.5 sq. ft.
Tubes and flues .....	2,644.5 sq. ft.
Total evaporative .....	2,868.0 sq. ft.
Superheating .....	650.0 sq. ft.
Comb. evaporative and superheating .....	3,518.0 sq. ft.
Special equipment:	
Superheater .....	Robinson
Tenders:	
Water capacity .....	5,000 gals.
Fuel capacity .....	7 tons
General data estimated:	
Rated tractive force, 85 per cent .....	72,940 lb.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent .....	80.9
Weight on drivers ÷ tractive force .....	4.43
Total weight engine ÷ comb. heat. surface .....	113.3
Boiler proportions:	
Tractive force ÷ comb. heat. surface .....	20.7
Tractive force × dia. drivers ÷ comb. heat. surface .....	1,133.2
Firebox heat. surface ÷ grate area .....	3.95
Firebox heat. surface, per cent of evap. heat. surface .....	7.78
Superheat. surface, per cent of evap. heat. surface .....	22.6

## I. C. C. Orders Hearing on N. Y. Central Train Control Contract

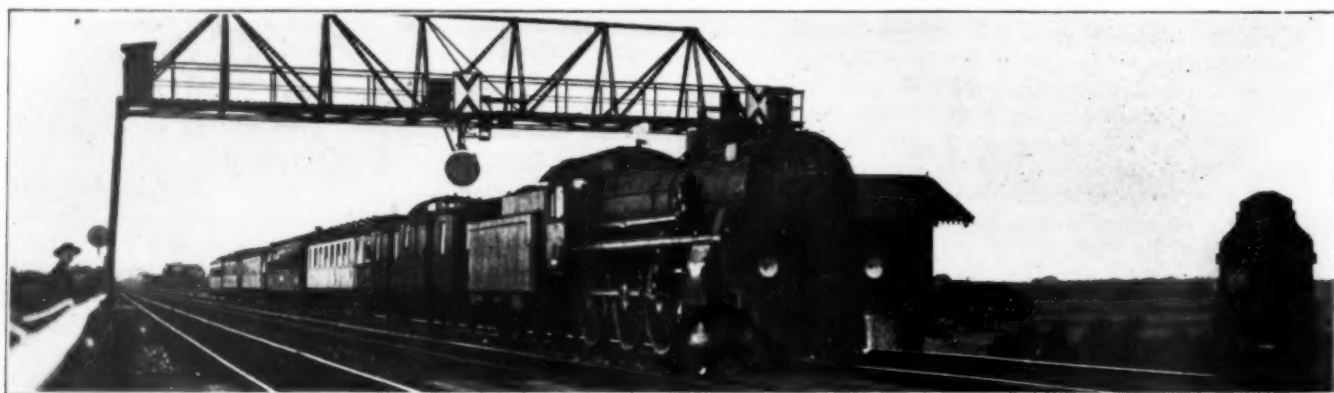
WASHINGTON, D. C.

THE Interstate Commerce Commission acted promptly on October 27 to order a re-opening if its automatic train control proceeding for further hearing at Washington on December 1 with respect to matters contained in a complaint filed on the same day by Frank J. Sprague, president of the Sprague Safety Control & Signal Corporation, against the New York Central and the General Railway Signal Company, alleging that

the automatic train stop of the General Railway Signal Company selected by the New York Central for installation on its lines "is inherently unsafe under the operating conditions obtaining upon the said railroad," and in particular in its use of a manual control or forestalling feature incorporated as an essential part thereof. The complaint further alleged that in the transactions between the New York Central and the signal company in connection with the selection and purchase of the device, section 10 of the Clayton anti-trust act was violated, in that the contract, although it amounted to more than \$50,000, was let to the General Railway Signal Company without competitive bidding, while the New York Central had among its directors, officers or agents persons who were "substantially interested" in the General Railway Signal Company.

The complaint outlines the history of the tests made on the lines of the New York Central with the devices of the two companies, saying that contracts were made with both for the purpose of comparative tests of the intermittent and continuous types of train control, after the New York Central had obtained bids for complete automatic train control installations including speed control without calling for bids for an automatic stop system with forestalling device. It is then alleged that on or before July 10, 1925, the New York Central concluded another contract with the General Railway Signal Company for permanent installation on seven divisions of the New York Central Lines for an auto-manual intermittent inductive system—"in other words an intermittent automatic stop with unlimited forestalling privilege," and notified the Sprague company that its contract of March 15, 1924, was at an end, without asking it for bids on that kind of installation. It is stated that the installation called for by the contract is inherently unsafe and contrary to the orders of the commission and that the General Railway Signal Company, "aided by the fact that it had contracted at profitable prices for interlocking and signal equipment," for the road, "and with prior and exclusive knowledge that a change of the conditions of equipment and operation would be accepted by said respondent, was enabled to make prices for automatic stop equipment which were advantageously low and manifestly unfair when compared with any price of petitioner in possession of the New York Central for automatic train control with speed control."

The complaint asks for the entry of orders by the commission requiring the respondents to cease the practice complained of and affording relief to the complainant. The commission's order says that the proceeding is re-opened for further hearing "and for the entry of such order or orders as may be proper with respect to the matters set forth and contained in said complaint."



Cologne-Berlin Express Near Hanover



# Telegraph and Telephone Section Meets in New Orleans

*Three-Day program includes reports of eight committees and two technical papers*

THE Telegraph and Telephone Section of the American Railway Association opened a three-day meeting at the Hotel Roosevelt in New Orleans, La., at 10 a. m., Tuesday, October 27. G. D. Hood, superintendent of telegraph, C. R. I. & P., chairman of the section, presided at the meetings.

The convention was welcomed to the city by E. J. O'Keefe, commissioner of finance of the city of New Orleans. For members traveling on the "Pan American" train, the Louisville & Nashville gave a special demonstration of standard radio equipment. Others interested inspected radio-equipped cars in the yard at New Orleans. The registration was 150 members with 65 ladies and guests. The entertainment included sight-seeing trips, a theater party for the ladies and an informal reception Monday night, a carnival dance Tuesday, and annual banquet Wednesday. There was an all-day trip on Friday of the entire party, inspecting rail and water transportation terminals, also a boat trip across Lake Pontchartrain, through the locks and on the Mississippi.

## Opportunities for Improving Message Traffic

The Committee on Message Traffic recommends that all telegrams shall be classified by the writers under one of the following segregations:

*Preferred*—Subjects of an urgent nature, subordinate only to "pink" telegrams, where such service is established.

*Day*—Subjects of a less urgent nature, to be transmitted after "pink" and "preferred" telegrams.

*Night*—Subjects that will not suffer from over-night delay, but which, owing to the distant location of the office of destination, cannot be handled by traingram or train mail in time to serve the purpose. This class of telegrams may be written and filed in telegraph offices at any time during the day or night and will be transmitted in time to reach their destination for the opening of the business day.

A standard classified service telegraph blank shall be used for all telegrams.

Message files not required for record purposes under Section 257-b of the Interstate Commerce Commission rules may be destroyed at the option of the carrier and it is recommended that the period of preservation be for six months, except at points where telegraphing is interchanged between roads where the period of preservation may be extended to one year to aid in the settlement of claims between carriers in which the telegraph service may be involved.

After a careful analysis of sample forms actually in use by some thirty member roads, it was the unanimous opinion of the committee that it is not practicable to standardize all message and report forms, preferably for use of type writers. The committee did not recommend the general installation of selectors on Morse telegraph circuits in local telegraph offices. Where paralleling train dispatching circuits are already equipped with selectors the assistance of the dispatcher can be secured in raising offices that are dilatory in answering their telegraph call, although it was the opinion of the committee that operators should not be relieved of the responsibility of constant supervision over their telegraph equipment. Doubt-

less the movement of business on heavily loaded branch wires would be improved by the installation of selectors at the more important offices, to be operated by a ringing device located in dispatching or relay offices, so as to avoid circuit waste in calling, but it was felt that this suggestion should be left for decision with the interested carrier. Selectors can be used to advantage in calling repeater stations and testing offices.

In the discussion of this subject there was considerable difference of opinion as to whether the dispatcher should be disturbed to call local operators.

The practicability of printing telegraph systems has been demonstrated on long as well as short circuits on various railroads. The installation and operation of direct keyboard page printing telegraph systems by some railroads during the past eighteen months has demonstrated to members of the committee that the use of this type of printers by railroads is justified, both from a message traffic and from an economical standpoint. In the general run of business the minimum traffic load that would justify their use would be a load requiring the employment of one first class telegrapher at each end of the line. As the machines can be operated duplex and will easily handle an average of 60 words per minute they may also be used to advantage for heavy traffic loads.

It was recommended by the committee that the practice of confirming telephone conversations by telegraph be discontinued. If it is desired to confirm telephone conversations for purpose of record traingram or railway mail service should be used. In the most exacting and important of all communication service on railways, viz., the handling of train orders, the telephone is depended upon, and it cannot be argued, therefore, that the telephone is unsafe for any class of communication.

## Outside Plant Construction

The construction and maintenance of the outside plant equipment used for telegraph and telephone facilities was the subject assigned to one of the major committees, the report of which included several specifications, the most important of which was devoted to the splicing of paper insulated lead covered cables, including 37 drawings and detailed explanations as to the proper procedure to secure satisfactory results. In connection with the presentation of this specification a moving picture film was shown through the courtesy of the Western Electric Company, illustrating the manufacture of lead covered cables.

The safety of linemen depends a great deal on the leather body belts and safety-straps used. Therefore, the committee brought out a specification that will insure uniform equipment that will render reliable service.

The labor of digging holes and setting poles is the major item of expense in constructing new pole lines. Therefore, considerable interest has been taken in the development of hole boring and pole setting machines during the last few years. The Buda-Hubron earth boring machine has been tested extensively and records show an average cost of \$1.14 for digging a hole where the right of way is comparatively level as, for example, in

middle western states. Clay, loam, slag and gravel can be handled efficiently by the machine. A moving picture was shown illustrating this machine in service, digging holes on the Illinois Central.

A four-wheel drive earth boring and pole setting machine, manufactured by the Four-Wheel Drive Auto Company, has been tested by the Detroit Edison Company. It is estimated that a crew of four men can dig the holes and set the poles at the rate of six per hour by the use of this machine, providing the surface of the right of way is such as to permit its use in the majority of cases. Considering all overhead and operating charges it is estimated that poles can be set for an average cost of \$2.44 by means of this machine.

Specifications for terminal construction and for the installation of underground cable were a part of the report of this committee, such instructions being of special benefit to men employed on such construction work. New specifications were also submitted for hard drawn copper wire and galvanized iron wire.

Pole lines can often be used satisfactorily for communication circuits, and also jointly for power and signal control circuits. However, certain requirements for voltages and spacing of wires is necessary and the committee prepared a specification for the joint use of poles. Where all circuits are owned or operated by one party or co-operative consideration determines that the circumstances warrant and the necessary co-ordinating methods are employed, double braid weatherproof covered wires carrying a voltage not to exceed, where practicable, 440 volts, or in exceptional cases, 550 volts, between conductors with transmitted power not in excess of 1600 watts when involved in the joint use of poles with signal circuits, may be carried below the signal circuits under certain conditions.

The replacement of wooden poles is one of the heavy items of maintaining pole lines and, therefore, efficient inspection to secure maximum life without failure in service is necessary. For this reason, a complete set of specifications for replacement inspection of wood pole lines was prepared by the committee.

#### Inside Plant Maintenance and Construction

The instruments, circuits, protective devices and other equipment located inside of offices and forming a part of communication systems are known as inside plant facilities, and one of the major committees was assigned to study the development of such apparatus, the work being divided among four sub-committees. The reports of this committee included several specifications, among which were those for braided office cable, dry cells, resistance units and friction and rubber tape. New developments in circuits and current supply require constant study and the committee has recently developed a new spare repeating coil, new composite sets and ringers, switchboard connections, etc., all of which were explained by diagrams and descriptions of the report. The methods of making tests for faults were described with illustrations. A standard design for the dispatcher's table was brought out by the committee, due consideration being given to permit free use of the table for train sheets and keep the communication equipment out of the way as much as possible.

#### Communication Developments

Sixteen new developments in the telegraph and telephone field as applied to railroads were described in the report of the Committee on Communication Developments, among which were: (1) Amendments to the 1923 National Electrical Code; (2) Alternating Current Relay; (3) Loud speakers Connecting Signal Towers in Terminal Territory; (4) Separate Plugs for Transmitter and

Head Receiver on Dispatcher's Sets; (5) Improved Neutralizing Transformer; (6) Rotary Switch Condensers; (7) Lead Bushings for Metal Boxes; (8) Detachable Bases for Wheatstone Relays; (9) Light Armatures for Wheatstone Relays; (10) Knife Switches; (11) Jack Plunger; (12) Switchboard Shelves; (13) Fault Location on Working Conductors; (14) Telegraphic Transmission of Pictures; (15) Photographs by Wire; (16) Demagnetization of Local Battery Telephone Receivers.

The Pennsylvania railroad reported that in order that telegraphers and towermen in towers located in terminal territory may be acquainted with the movement of trains the public address system has been installed in each tower. The amplifier is located at a central point. Two cable pairs are connected to the amplifier, one pair used as the input and the other as the output. At each tower on the input circuit, desk stand telephones with transmitters only are used. At each tower on the output circuit a loud speaker is used. To eliminate the possibility of the receiver howling when the transmitter is being used in the same tower, a relay, the winding of which is in series with the transmitter, is used. The volume of the loud speaker is sufficient to enable the employees in the tower to hear without difficulty.

#### Progress in Radio Adaptable to Railroads

Suitable systems have been developed by various manufacturing companies which are being offered for sale to electric light and power companies, but up to this time, no definite assurance has been received that the companies manufacturing this apparatus are in position to offer for sale radio carrier equipment for use by steam railroads for application to their electric light or power lines for private telephone communication. The field for such a communication system lies principally with those railroads which own high tension electric transmission lines devoted exclusively to the transmission of power. Such transmission lines as are used in connection with the interlocking switching and signals are not readily adaptable to this service with the present commercial types of apparatus. If there are specific instances where it is desired to consider a power line carrier current system for providing railroad communication facilities, it would be desirable to bring this to the attention of the committee.

The committee has been in touch with leading manufacturers of printing telegraph equipment and was informed that the experiments with printing telegraph systems operated by radio have been continued, and the tests have fully convinced their engineers that printer operation by radio is practicable, and with high power transmitting stations and proper wave lengths it is felt that the distance for such communication is unlimited.

A report was submitted to the committee by the American Radio Relay League, indicating the experience of the league in connection with extensive experiments carried out in the use of short wave lengths. Signals can be transmitted successfully in daylight on a wave length of 21 meters, using only 60 watts input. These experiments may result in the development of apparatus of practicable use on railroads.

A detailed description of the principles for the protection of telegraph and telephone apparatus against operating voltages was presented by the Committee on Electrical Protection, as was also a specification for telegraph and telephone protective resistances and mountings.

On electrified roads, and where power lines parallel steam roads, high-voltage current often causes inductive interference in the telegraph and telephone circuits. The Committee on Inductive Interference made an extensive study of the various factors contributing to such trouble and presented an extensive



report of its findings. Current limiting reactors and resistances, feeder booster transformers, return feeders and the relative position of communication and propulsion circuits were among the items studied and discussed.

Satisfactory operating results must be assured with the installation of new circuits and, by assembling information, standards of sizes for line wire, effective voltages, leakage, electrostatic capacity, etc., have been established by the Committee on Communication Transmission, and a set of requirements for efficient railroad telegraph and telephone transmission has been established.

Wm. H. Capen of the engineering department of the International Western Electric Company, Inc., presented a paper on Wire Telephone Communications in Theory and Practice in which the nature of language and the conditions for intelligible communication by speech were briefly considered. A short discussion was given of the requirements of a telephone transmission system together with the effects and functions of the several parts of such a system. Loading and the application of telephone repeaters were discussed. Attention was called to the causes of interference resulting in noise on telephone circuits and means for minimizing these effects were outlined. Finally, fundamental plans and the establishment of economical service and the testing methods evolved to assure the continuance of good service were reviewed. The paper was in general, a summary of literature already published, but in scattered form.

E. E. F. Creighton, laboratory engineer of the General Electric Company, gave an address on The Theory of Lightning Discharges and Effects on Telegraph System, illustrated by films. J. W. Milnor, research engineer of the Western Union Telegraph Company, presented a paper on The Solution of Practical Field Problems in Inductive Co-ordination. In connection with the report on current supply, C. E. Stryker, electrical engineer of the Fansteel Products Company, gave a talk on the principles of operation and the application of different rectifiers to communication circuits.

In the discussion of the paper on inductive co-ordination by J. W. Milnor, it developed that some were in favor of allowing power companies to build transmission lines on railroad right-of-way, providing contracts insured proper protection against inductive interference with communication circuits. Such a policy of co-operation was claimed to be more satisfactory than having a line near the right-of-way, with no guarantee of protec-

tion, as the railroads need power at various points and the problem might well be met now in a spirit of co-operation.

Other roads, which were perhaps in the majority, claimed that distance between lines was the best protection against inductive interference between power lines and railroad communication circuits, and a distance 600 ft. or more was desirable.

## Seventeen Passengers Killed at Victoria, Miss.

**E**IGHTEEN persons, including the conductor of the train, were killed and 35 injured when "The Sunnyland" St. Louis-San Francisco train 108, en route from St. Petersburg, Florida, to Kansas City, Mo., was derailed and turned over about a quarter of a mile



International

Two of the Cars on the Fill

south of Victoria, Miss., at 6:35 a. m. on October 27. The heavy loss of life was due to the fact that the accident occurred on a 40 ft. fill. Four sleeping cars, three day coaches and two baggage cars left the track some of them rolling over and over down the side of the fill. The two rear sleeping cars, the locomotive and one baggage car did not leave the rails. With one exception the persons killed were in the coaches.

The accident was caused by a break in an open hearth 90 lb. rail rolled in 1918 and inserted in the track in the latter part of 1919. When examined by officers of the Frisco the rail was found in good condition, and showed very little if any wear, since that section of the track on which the accident occurred was a tangent. The track in this vicinity had the standard ballast section, was fully tie-plated, and was in first class condition. Much greater loss of life among the passengers of the train which was well filled, was undoubtedly prevented by the fact that the train consisted of all steel cars, the deaths and injuries occurring when the cars rolled down the embankment. The train was running at between 45 and 50 miles an hour. J. H. Fraser, general manager of the road, was at Memphis, Tenn., a short distance from the scene of the accident, and immediately left for the spot with a relief train carrying doctors, nurses and medical facilities. The dead and injured were taken to Memphis as fast as they could be freed from the wreckage.



International

Viewing the Wreckage, Victoria, Miss.

# Nickel Plate Hearing Near End

*Final testimony of six months' hearings on Van Sweringen application being presented this week*

WASHINGTON, D. C.

THE concluding testimony in the hearing on the Van Sweringen-Nickel Plate unification application is being heard by Commissioner Meyer of the Interstate Commerce Commission this week. The second of two witnesses on behalf of the Scott committee representing minority stockholders of the Chesapeake & Ohio in opposition to the plan was heard on October 27 and was followed by two witnesses on behalf of the minority stockholders of the Hocking Valley. Counsel for the Scott committee also asked for the appearance of John Sherwin, vice-president of the Nickel Plate and for an opportunity to further question E. M. Thomas, comptroller of the Chesapeake & Ohio, and this was expected to wind up the hearing, although arguments will be heard by the full commission at a later date. The record taken since April 15 now amounts to nearly 8,000 pages and nearly 400 exhibits.

J. R. Nutt, president of the Union Trust Company of Cleveland and one of the four trustees for the stock of the Vaness company which holds the controlling stock interest in the various Van Sweringen enterprises, testified on October 26 at the request of H. W. Anderson, of counsel for the protesting minority stockholders of the Chesapeake & Ohio, who had asked that a subpoena be issued for him after W. A. Colston, general counsel of the Nickel Plate, had said he had been unable to locate Mr. Nutt. Questions regarding his connection with the various companies and with the unification plan brought out that he is one of eight vice-presidents of the Nickel Plate, of which four are connected with the Union Trust Company and have little to do with the affairs of the railroad except as directors, and that he receives no salary but is occasionally assigned a private car for his travels. He had invested \$175,000 in the stock of the Nickel Plate Securities Corporation, through which the Van Sweringens had purchased the stock of the old Nickel Plate from the New York Central, and said that was his entire investment in any of the railroads involved in the unification plan and that he had got it back substantially through sale of the non-voting preferred stock of the Vaness company. When he said he thought the trust agreement by which the stock of the Vaness company was deposited with the Union Trust Company was made a year or two ago Mr. Anderson asked that he produce a copy of the original agreement because the one that had been supplied him confidentially was dated July 16, 1925, subsequent to his cross-examination of Mr. Van Sweringen. Mr. Nutt said he knew of only one agreement but that perhaps the agreement was not drawn up until after the deposit of the stock. Mr. Anderson then asked that he furnish the entire record in the files of the bank relating to the deposit of the stock. Mr. Nutt said that no officer of the New York Central was directly or indirectly interested in the transaction.

Mr. Nutt told of his study of the unification plan and of the various reports he had considered in deciding that it was a fair plan for all concerned but said he had no record of what factors had been considered, and admitted that by the use of proxies he and C. L. Bradley, vice-president of the Union Trust, and O. P. and M. J. Van Sweringen, the stockholders of the Vaness company, had approved the plan for the Nickel Plate, Chesapeake &

Ohio and Hocking Valley. Asked why the Nickel Plate is not required by the plan to exchange its stock for new company stock and is allowed to keep its treasury stock, while the Chesapeake & Ohio stockholders exchange their stock but the company receives nothing for its treasury holdings, he said he knew of no particular reason and that he did not recall what would become of the Hocking Valley stock, now pledged under Chesapeake & Ohio bonds, after it is released from pledge. He said he had known the reasons at the time but that he had considered the plan as a whole and thought it fair. Asked if the object was not to insure that control of the new company would remain with the four trustees, he said he felt that they would have approximate control. He was asked many questions regarding the effect of the plan on the various stockholders but said he did not remember the details which were considered at the time.

Asked by what authority cash funds of the Chesapeake & Ohio, including the proceeds of the sale of \$6,200,000 of government securities, were deposited with the Union Trust Company, J. P. Morgan & Co., and other New York banks at 2 and 2½ per cent when they could have been deposited in banks on the line of the road at 3 per cent, Mr. Nutt said it had been approved by the C. & O. directors, that a fair amount of cash was kept in the local banks, that he had always believed in "keeping money with his friends" and that the company was doing business with the banks named and that the entire transaction represented good business. Regarding the sale of the government securities, which had been criticized, he said that they were maturing shortly and were sold at par and interest to maturity.

Mr. Nutt was then asked about a contract dated May 25, 1925, between the Union Trust Company and A. B. Crichton for the purchase of some 8,000 shares of the stock of the Greenbrier & Eastern at \$125. He said this was made at the personal request of O. P. Van Sweringen, who had verbally promised to put the bank in funds to pay for the stock, and that with such a client the bank did not always require a written agreement. Mr. Anderson also produced a copy of a contract dated May 22 between the C. & O. and Mr. Crichton regarding the purchase of the stock. Mr. Nutt said Mr. Harahan had discussed at board meetings the desirability of the purchase of this road for the Chesapeake & Ohio and had said it would probably be necessary to pay as much as \$125 for the stock.

Mr. Nutt said that on his recent western trip he had not learned that his presence as a witness in Washington was desired until someone had told him in Chicago, the day before his return to Cleveland, that although he had called his secretary by telephone he had not asked her about the matter. He said that the Nickel Plate office was advised at all times of his movements because Mr. Bernet's chief clerk was making telegraphic arrangements for the movement of the car.

Before Mr. Nutt testified his secretary, Miss Winifred Treat, was questioned about her knowledge of Mr. Nutt's movements on his western trip and why she had not informed Mr. Colston where he was. She said that although Mr. Nutt arrived in Cleveland on October 16 he did not come to the office until October 20 and she did not know



of his return. Later Mr. Colston was called to the stand to explain why he had been unable to locate Mr. Nutt. He said he had not inquired of the Nickel Plate office. After Mr. Anderson had informed him that he had heard Mr. Nutt had returned to Cleveland he had wired to Cleveland that he was wanted and Mr. Nutt had replied that he was ready to appear. An associate of Mr. Nutt who was on the western trip with him testified that Mr. Nutt had said that when he got to Cleveland he was going to his home "because he did not want to see that man Colston because he didn't want to go to Washington."

Howard T. Page, accounting witness for the Scott committee, completed his presentation of statistical exhibits showing the percentages of earnings, assets, etc., contributed to the proposed system by each of the roads involved, to show that the C. & O., would contribute in greater proportion than its stockholders would receive in the stock of the new company.

#### Testimony of Chairman of Protesting Committee

George Cole Scott, of Richmond, Va., chairman of the committee which he had organized to represent the stockholders who opposed the Van Sweringen plan, was the concluding witness on behalf of the committee and presented a prepared statement in which he said that, exclusive of the stock owned or controlled by the Van Sweringen interests, only 20 per cent of the stock of the C. & O., voted to approve the plan.

Mr. Scott filed a copy of an agreement undertaking to contribute to the expenses of the committee saying it had been signed by the owners of some 32,000 shares of stock, and that the owners of 45,000 additional shares have contributed proportionately without signing the agreement.

"It has been suggested in this hearing," Mr. Scott said "that the committee bought the stock which its members now own for the purpose of fomenting litigation. The memorandum which I have heretofore filed showing the stock personally owned or represented by the committee's members is a refutation of this assertion, but the committee received responses as of October 14, 1925, from the owners of 14,777 shares of preferred stock and 36,337 shares of common stock, a total of 51,114 shares, and I present a statement summarizing the dates of the acquisition of such stock by the stockholders who have furnished the information requested.

"I do not agree with the statement of Mr. O. P. Van Sweringen that the only right or duty of a stockholder in a railroad company is to go along with the majority or to sell out for cash. It is my view that a stockholder in a railroad company has the right, and it is his duty, to protect his interests and the interests of his fellow-stockholders in the enterprise; and that he is charged with even a higher duty of seeing that the property of which he is a part owner is used and administered in a way which will render to the public the maximum service at the lowest cost, which is the primary purpose of its creation. When a man invests his money in a railroad he not only makes an investment for himself, but in my opinion he assumes a duty and an obligation to his co-stockholders and to the public.

"The Transportation Act of 1920 requires that any plan for the unification of these railroads by lease or otherwise shall be fair and reasonable, which I take it means fair and reasonable to the parties in interest as well as to the public. Viewing the Chesapeake & Ohio Railway Company in comparison with the properties of the other companies parties to this plan from this standpoint of commercial value, it seems obvious to me that the plan is grossly unfair to the stockholders as owners of the Chesapeake & Ohio property. The Chesapeake & Ohio is one of the most advantageously located railroads in the United

States from the standpoint of business and connections. The physical condition is excellent. Its road and equipment have been brought to a high state of efficiency by extraordinary maintenance charges during the last three years with a corresponding reduction in current net earnings.

"Notwithstanding these extraordinary maintenance charges the net earnings have shown unusually large increases from year to year while dividends on the common stock have been kept down to an unjust and wholly unreasonable rate for the obvious purpose of affecting adversely the exchange value of the stock under the terms of the Van Sweringen proposal which the record shows has been in contemplation during the entire period of, in fact for some time prior to, the Van Sweringen control of the company.

"A comparison of the working capital of the five roads proposed to be unified, as reflected in their net current assets, demonstrates the overwhelming superiority of the Chesapeake & Ohio to handle its own rapidly increasing business and indicates that, if the proposed new system is formed, the C. & O. would provide as at December 31, 1924, 67.5 per cent of its net current assets. Exhibits which we have filed, covering the period 1916 to 1924, show conclusively that the proposed new system would depend in large part upon the resources of the C. & O. to provide adequate working capital.

"Another, and, in my opinion, equally objectionable provision of the plan is the issuance of new preferred stock without voting power. There are now outstanding 1,000,951 shares of preferred stock of the applicant companies having voting power for which it is proposed to issue in the ratios provided in the plan 698,652.5 shares of new preferred stock without voting power. In addition there will be issued to C. & O. common stockholders 359,841 shares of such non-voting preferred, making a total issue of 1,058,493.5 preferred shares of the new company without voting power for common or preferred stock now having voting power. Stockholders of a railroad company are owners of a property dedicated to a public use. They cannot discharge their obligation without voting power and it seems to me manifestly contrary to the public interest to give to stockholders of this class a higher dividend rate in consideration of the surrender of their voice in the management of the company.

"The exhibits which have been filed cannot fail to establish to any open mind that the present and potential net earning power of the Chesapeake & Ohio, based upon any period of the past for which comparisons may be made, is far greater than any of the other applicant companies.

"It seems to me, therefore, that these considerations, and others which are generally recognized in arriving at commercial values of any business property, clearly demonstrate that the stockholders of the Chesapeake & Ohio Railway Company, whose property is being taken from them through the exercise of control by persons who have larger interests in other companies being put into this merger, are being unfairly and unjustly treated. Their property is not only being taken, by the exercise of this otherwise interested control, at an unfair and inadequate consideration but the terms of the transfer guarantee no return to stockholders who retain their C. & O. stock or who elect to exchange their shares of stock for stock of the proposed new company. The plan contemplates the payment of dividends at stated rates but payment is, of course, contingent upon the combined earnings of the proposed new company which may or may not, even when aided by such substantial contribution from the property of the C. & O., be sufficient to assure performance of the proposal.

"I have been unable to discover any specific transporta-

tion benefit which will result from putting the Chesapeake & Ohio into this proposed combination. The Chesapeake & Ohio has no natural connection with either the Erie or the Nickel Plate roads. It crosses them at right angles. In the territory which they jointly serve it is a north and south line, while they are east and west lines. The interchange of business between the Chesapeake & Ohio and the Nickel Plate and the Chesapeake & Ohio and the Erie is merely nominal, although there has been a common ownership between the Chesapeake & Ohio and the Nickel Plate for more than two years.

"The proposal is purely and simply a stock manipulation in which the enormous current assets and earning capacity of the Chesapeake & Ohio (and the Hocking Valley which it controls) is to be used to build up the value of the Erie and Nickel Plate roads in which the proponents of the plan who also control the Chesapeake & Ohio, have a very large or controlling interest.

"If any results flow from this unification they can only bring about a loss of interchange between the Chesapeake & Ohio and other lines, such as the New York Central, the Baltimore & Ohio and the Pennsylvania, through which a very large percentage of coal from the Chesapeake & Ohio lines is now distributed in the western and northwestern territory. The plan would, therefore, be injurious to the Chesapeake & Ohio by tying it up for interchange of traffic with the Nickel Plate and Erie, the weakest lines in the territory served, and it would be destructive of the public interest, since it would operate as a restraint upon the distribution of this essential product, coal, throughout the territory in which it should be and is now freely distributed.

"This proposal and the evidence in support thereof clearly shows that the public interest was not even considered in the formulation and development of the plan. There is no discussion of the transportation service or probable benefits from transportation standpoints in the minutes of the applicant companies' meetings. The plan was developed by bankers in the interest of bankers and as a banking proposition. If it is put through it will result in enormous profits to the bankers and controlling interests of these properties, and increased charges upon the public. I merely state the facts. I do not believe that a plan which is founded upon these principles or produces these results is in the public interest or should be approved by this commission. I am confident that it is not within the contemplation of the Transportation Act."

Mr. Colston cross-examined Mr. Scott at length to show that he was not entirely familiar with many details pertaining to the financial situation of the Chesapeake & Ohio and put into the record a statement showing that the company since 1899 had issued approximately \$30,000,000 in securities more than it had expended for additions and betterments. The witness said he had not studied the situation from that angle. Commissioner Meyer then asked Mr. Scott what he would consider fair terms for the Chesapeake & Ohio. He said he had not thought out just what terms would be satisfactory but that he was opposed to the whole plan, although he thought a merger of the C. & O., and the Pere Marquette might be a good thing.

Dr. Lewis H. Haney, director of the Bureau of Business Research, New York University, testified that the compensation offered for the Hocking Valley minority stock not owned by the Chesapeake & Ohio under the plan is unfair. It is proposed to pay at the rate of about \$92 per share, assuming present market values for Nickel Plate stock. "I find," he said, "that the Hocking Valley stock is worth about \$180 per share, whether figured on the basis of earnings or assets. Thus, the amount offered is only about half the value. In addition to the earnings

it brings to the proposed system, the Hocking Valley is a vital link which has such strategic value that it would be worth even more than \$180 per share in a free bargain. It is the one of the five roads which connects the coal properties of West Virginia with the more northern roads. It is the only important north and south line and serves to tie together what would otherwise be a very sprawled out group. Practically all figures submitted have agreed on one point, which is that the proposed payment for the Hocking Valley is considerably less than would be warranted by its contribution in earnings. This unfairness was possible because the majority stockholders were in the double capacity of buyer and seller. This case presents the first opportunity for real bargaining on the basis of actual values."

A large part of the hearing on October 28 was taken up in cross-examination of Dr. Haney by Mr. Colston, who objected to many of the methods of comparison used, particularly the capitalization of earnings on a 6 per cent basis, and who said that the plan offered compensation to any stockholders of the Hocking who were not satisfied with the terms proposed on the basis required by the Ohio law, that is, cash payment for the stock at the highest market price during the six months period preceding the proposal. The second witness on behalf of the Hocking Valley minority was J. W. McInerney, statistician for Wood-Low & Co., New York, who began his testimony on October 28 with a series of statistical exhibits intended to show the value of the Hocking Valley stock and the contribution of that road to the proposed system.

## Japanese Railways Adopt Automatic Couplers

ON July 20, 1925, the Japanese government railways completed the work of equipping its rolling stock with automatic couplers. With the exception of the Kyushu district, the work of changing the couplers from the screw and link type to the automatic was performed on July 17, but owing to the different character of traffic in this district, the final change was not made until July 20. The actual work, however, of changing from one type to the other on all divisions was performed in a single day. The rolling stock on which the change of couplers was made included over 3,000 locomotives and approximately 9,000 passenger and 52,000 freight cars. Over 5,000 locomotives and cars belonging to private railway companies were also changed on the same day. About 12,000 men were employed during the period in which the final work of making the change-over was performed. The preparatory work was begun in 1919, at which time all new equipment was designed for the application of the automatic coupler and the center and end sills on all old equipment was changed as it went through the shops for repairs.

Previous to this year, automatic couplers were used only on the railways in Formosa, Korea and South Manchuria. The railroads in these countries having adopted automatic couplers when they were first placed in operation. In Japan proper, automatic couplers had only been used on the Hokkaido lines which include approximately 1,300 miles of track. Automatic couplers had also been used on the suburban lines running out of Tokyo for about ten years.

A total of 17 private railways were purchased by the Japanese government after the passage of the law in 1906 which nationalized the railways in that country. At that time there were several different types of couplers used.



The amalgamation of these railways into one system, of course, made it necessary to standardize the couplers and at that time a standard type of screw coupler was adopted. It was decided in 1913 to adopt an automatic coupler and as the result of investigations conducted on the Hokkaido lines, it was finally decided to adopt the Sharon type. The Alliance coupler, however, is also being used to a considerable extent. A new type of coupler of Japanese design has recently been introduced. It is expected that this design will be used quite extensively. The draft gears used are of simple design consisting of front and rear followers with draft springs and coupler yokes to hold the followers in place.

The total cost of making the change amounted to about \$5,475,000, the expenditure of which was spread over a period of seven years. The government also paid a sum of approximately \$306,000 as a subsidy to the private railway companies which amounted to about half of their total expenditures.

The work of changing from the screw and link type over to the automatic type was performed in three stages. The first stage consisted of rebuilding the end sills of the cars and attaching follower guides to the center sills. In the second stage the automatic couplers were distributed among the freight cars on all divisions, including the Kyushu district. These couplers, with the draft gear attached were hung crosswise on the center sills under the body of the car. The uncoupling levers were also attached in the proper position ready to be connected. The locomotives and passenger coaches, however, were not handled in this manner, owing to the practice of assigning locomotives and passenger cars to certain trains and these trains only lying over at a terminal for a few hours until they are on the road again. The couplers of the passenger cars which were made up in regular trains, were changed in the period from July 1 to July 10. The couplers of passenger cars going through the shops were changed between July 11 and July 16. The couplers on both ends of the passenger trains and the locomotives were changed on July 16 and 17. This program included all districts with the exception of the Kyushu district where the work was done in each case three days later.

The third stage of preparation included the testing and inspection of the work which was performed in the first and second stages, and was carried on simultaneously with the progress of these stages. This work included the removal of the old couplers and buffers and the application of the automatic couplers and draft gears which were hung under the car body. After this test was made, the old couplers and buffers were reattached and the automatic couplers and draft gears were hung again under the car. All bolts and nuts were oiled so as to facilitate the work of making the final change-over. This work was not only done for the purpose of inspection and testing, but also performed with the idea of training the various employees, many of whom had no previous experience in car repair work, for making the actual replacement, which had to be done according to a close schedule.

The work of replacing the old couplers was completed on the Honshu and Shikoku divisions on July 17. The final work on the Kyushu lines which are on another island, separated from Honshu, was performed on July 20. The freight traffic over the Honshu and Shikoku lines was suspended for an entire day, of 24 hours; namely, from midnight to midnight of July 17. There were, however, a few freight trains operated for the transportation of fish, vegetables and other perishable products. All the freight cars were assembled at 221 repair points during the night. Gangs consisting of from six to eight men were assigned to the work of replacing the couplers. It was planned to have all of the work completed by 7

p. m. On the Sendai division, however, all of the work was completed by noon; on the Kobe division it was finished at 4:30 p. m.; on the Tokyo division at 5:30 p. m.; on the Moji division at 6:30 p. m. and on the Nagoya division at 8:00 p. m. There was no interruption whatsoever in the operation of passenger trains.

## Block Signal Mileage Statement

THE Interstate Commerce Commission has issued its annual bulletin, prepared by the Bureau of Signals and Train Control Devices, showing the mileage of railroad in the United States operated under the block system on January 1, 1925, together with data concerning the use of the telephone for the transmission of train orders, and a short table showing the status of automatic train control on that date.

The total length of railroad in the United States operated under the block system was 108,089.9 miles; 43,838.8 miles automatic and 64,251.1 non-automatic. As compared with the preceding year this shows an increase of 2,301.7 miles automatic and a decrease of 113.4 miles manual; a net increase of 2,188.3 miles.

The bulletin, like those of former years, contains detail tables showing the total mileage, single track, double track, etc., operated by the block system, kinds of signals, various practices, and other data as reported by each road. This treatment of mileage figures results in a considerable duplication as there are numerous long stretches of road which are operated jointly by two or more companies, and are reported by each company. This makes a fictitious increase in the total mileage for the country.

The principal increases and decreases in mileage in 1924, as noted in the bulletin, are shown in Table A.

TABLE A—INCREASES IN BLOCK SIGNALING IN TWELVE MONTHS—MILES OF ROAD

Name of road	Increase		Decrease non-automatic
	Automatic	Non-automatic	
Atchison, Topeka & Santa Fe.....	251.8	144.4	.....
Atlantic Coast Line.....	4.0	.....	19.0
Buffalo, Rochester & Pittsburgh....	10.1	.....	9.6
Chesapeake & Ohio.....	9.4	.....	9.4
Chicago, Burlington & Quincy.....	37.4	.....	36.4
Great Northern.....	205.8	.....	.....
Illinois Central.....	67.3	.....	.....
Louisville & Nashville.....	186.4	10.2	.....
Missouri-Kansas-Texas of Texas....	13.4	.....	.....
Missouri Pacific.....	16.6	.....	16.7
New York Central.....	123.9	.....	78.3
Michigan Central.....	10.0	.....	33.8
New York, New Haven & Hartford..	.....	.....	14.7
Norfolk & Western.....	106.6	.....	106.7
Northern Pacific.....	34.5	.....	24.2
Pennsylvania System.....	15.0	.....	34.9
St. Louis-San Francisco.....	41.1	.....	.....
Southern.....	84.4	.....	80.1
Southern Pacific (Pacific System)...	255.9	907.4	.....
Galveston, H. & S. A.....	148.0	.....	149.9
Houston & Texas Central.....	22.2	.....	20.2
Morgan's L. & Tex.....	37.0	.....	37.0
Union Pacific:			
Oregon Short Line.....	12.6	.....	.....

The bulletin has a table, supplementary to Table 2, showing the roads on which light signals are in use, with the mileage on each. Those using these on more than 100 miles of line are:

	Miles of road
Atchison, Topeka & Santa Fe.....	388
Chesapeake & Ohio.....	131
Chicago, Burlington & Quincy.....	179
Chicago, Milwaukee & St. Paul.....	596
Great Northern.....	557
Illinois Central.....	310
New York Central.....	141
Norfolk & Western.....	107
Pennsylvania.....	310

All of these roads show large increases in this item, over the previous year. The total length of road on which

light signals are in use is 3,629.6 miles, as compared with 2394.1 miles one year before; an increase of over 50 per cent. A considerable portion of the light-signal mileage represents electric inter-urban lines.

Three roads state in foot notes to Table No. 2 that cab signals are in use—the Atchison, Topeka & Santa Fe, the Chesapeake & Ohio and the Pennsylvania. These three items total 208 miles of road. They refer, of course, to the cab signals which are in use in connection with automatic train stops.

Table No. 7 in the bulletin gives the names of roads which have been required to instal automatic train stops with (1) mileage ordered, (2) mileage equipped on January 1, 1925, (3) locomotives to be equipped and (4) locomotives equipped on January 1, 1925. The totals are:

1.....	4,575.5	3.....	4,295.0
2.....	1,399.1	4.....	757.0

[A statement issued by the American Railway Association and published in the *Railway Age* of September 5, page 451, showed automatic train control installed or being installed on 5,044 miles of track.—EDITOR.]

The length of railroad on which the telephone is used for the transmission of train orders aggregates 132,850 miles which is 1,521 miles above the total of January 1, 1924; and the telegraph is still used on 121,521 miles.

## Freight Rate Hearing Resumed

**T**HE hearing before Chairman Clyde B. Aitchison of the Interstate Commerce Commission on the petition of the western carriers for a five per cent increase in freight rates which was started at the Edgewater Beach hotel, Chicago, on September 8, and closed on September 16, was resumed in Chicago on October 26. The first witness called was L. W. Baldwin, president of the Missouri Pacific, who testified for the carriers.

### L. W. Baldwin Testifies

L. W. Baldwin, president of the Missouri Pacific, testified as to the effect of bus and truck competition on the earnings of his road. An abstract of his testimony follows:

"Since 1920, the carriers operating in the western district have sustained losses in revenue which I regard as more or less permanent in their nature. I refer to competition by bus and automobile and by trucks transporting short-haul merchandise traffic. This situation has grown out of the continued building of hard surfaced roads, in most instances paralleling the lines of the carriers from and to points between which there had been some considerable movement of merchandise freight traffic.

"Fifty per cent of the total mileage of the Missouri Pacific System is at present paralleled by hard-surfaced or improved dirt roads. In addition to the losses we have suffered in passenger earnings, the following examples are typical of the effect which the construction of hard-surfaced roads has had on our short-haul merchandise traffic. During 1919 from Memphis, Tenn., to Crawfordville, Ark., Earle and Parkin, with distances ranging from 17 to 32 miles, the Missouri Pacific transported 7,826,692 lb. of less-than-carload freight, while in 1921 after the construction of a hard-surfaced road between these points, the traffic amounted to only 1,391,958 lb. From Little Rock, Ark., to Alexander, Bryant and Benton, with distances ranging from 17 to 27 miles, the Missouri Pacific in 1919 transported 2,185,758 lb. of less-than-carload traffic. In 1921, after the completion of hard-surfaced roads, this traffic amounted to only 180,774 lb.

"The result of this condition is that while trucks take most of the short-haul, less-than-carload traffic from and to points connected by hard-surfaced roads, and also served by rail carriers, the trucks do not take all of the traffic and as a result the rail carriers must continue to furnish service between those points at a substantial loss. The examples given are illustrative of the effect competition by truck has had on short-haul traffic and it is unquestionably true that when the road-building program now under way has been completed in the West, the examples I have enumerated

will be multiplied many fold and in those portions of the district where the carriers have heretofore enjoyed considerable traffic between distributing points and stations on their lines. It is my view that losses in earnings due to truck, automobile and bus competition are permanent and that this fact should be given consideration by the Interstate Commerce Commission in determining the issues involved in this case.

"If the World War has taught the American people anything, it is that next to man-power the greatest asset to this country is its railroads. If, however, we are to maintain the standard of efficiency demanded by the public and required by the present economic condition, the railroads must continue the expenditure of large sums for improvements for a number of years to come. In order to raise this money there must be some assurance that the revenues of the carriers will be safe-guarded and, when necessary, augmented, to enable them to carry the additional investment which the public interest and welfare demands. This has not been done in the past five years."

## American Railway Association Adopts New Rail Specifications

**W**ITH the adoption last week by the American Railway Association of the 1925 rail specifications formulated by the Rail Committee of the American Railway Engineering Association and adopted by it at its annual convention last March, there is now available for the first time a specification drawn by the American Railway Engineering Association which is acceptable to the manufacturers in all respects and in accordance with which they will roll rail without premium. These specifications have been accepted by the American Engineering Standards Council representing the Department of Commerce and it is expected that they will also be accepted by the American Society for Testing Materials. The manufacturers have already accepted orders for over 100,000 tons of rails to be rolled to this specification without premium.

These specifications are the result of four years' extended study by the Rail Committee and bring into accord with modern practice the prior specifications of the American Railway Association adopted in 1915 and revised in 1920. They differ from the 1920 specifications in the following respects:

(1) All three drop tests must stand instead of two out of three required previously, thereby discontinuing the acceptance of any material which fails under test. The specifications also provide for a one blow drop at an increased height, breakage under which rejects the steel, instead of fixing the number of blows necessary to produce a specified minimum elongation without breakage before acceptance.

(2) An increase in the length of the rail from 33 ft. to 39 ft.

(3) The raising of the carbon limits to provide greater hardness and of silicon to promote dead setting steel with relative freedom from segregation.

(4) The use of the nick and break test for purpose of classification rather than rejection as heretofore.

(5) The elimination of clauses stipulating requirements of mill practice which were not mandatory and which cause continual dissension between the railways and the rail mills. In their place a provision has been inserted requiring that the mill practice must be in accordance with the best practice of that individual mill and the inspectors are provided with authority to report any deviation to the mill management and the railroad simultaneously. This provision affords approval for the inspection of manufacture.

Through the use of these specifications it is expected that a safer and longer wearing rail will be secured.



## General News Department

E. E. Loomis, president of the Lehigh Valley, is chairman of the railroad group of the New York City Red Cross, formed for activities connected with the ninth annual roll call, which is to be begun on Armistice Day, November 11. Mr. Loomis has issued an appeal to railroad officers and employees to render a whole-souled and generous response to the appeal of the Red Cross.

The Illinois Central has acquired by lease radio broadcasting station WGES, located at Oak Park, Ill. The station will present the usual programs of music and other entertainment with occasional features of particular interest to Illinois Central employees. The station may also be used in transmitting orders in case of a breakdown of telephone and telegraph lines such as was experienced last winter.

Motor trucks are now used by 51 steam railroads for hauling freight on public highways. This statement is made by the National Automobile Chamber of Commerce, following an inquiry which was answered by about 200 railroads. This total compares with 33 such trucks a year ago. Twenty steam railroads now use 219 motor buses, and 190 steam and electric railroads use about 500 rail motor (gasoline) passenger cars. Many other roads are contemplating improvements of the kind here noted.

The New Testament of Our Lord and Saviour Jesus Christ, "appointed to be read in churches," is a good book for railroad men to read. This is the gist of a message to the employees of the Canadian National from Sir Henry W. Thornton, president of the company, printed in the Canadian National Railways Magazine for October. "I read it frequently," says Sir Henry. "Real Christianity is the basis of good business conduct. There are more good business principles in the New Testament than in all the books in the world having to do with business methods."

The general chairmen of the Brotherhood of Locomotive Engineers and the Order of Railway Conductors for the Southern Pacific lines have filed with the Interstate Commerce Commission objections to a petition filed by the Public Service Corporation of Oregon asking the commission to reopen the case in which it approved the acquisition of control of the Central Pacific by the Southern Pacific, for the insertion of additional conditions. The objectors state that the control by the Southern Pacific of the Central Pacific lines has resulted in great and far-reaching benefits to the brotherhoods and their members, as well as to the public generally.

The Pennsylvania announces that work is to be begun at once on the laying of wires under ground for all of the telephone, telegraph and signal circuits between Philadelphia, Pa., and Wilmington, Del., 26 miles. This work is preliminary to the electrification of this section of the road (four track); and the new construction will take the place of all of the present pole lines. New steel poles will then be put up for the propulsion current. The underground construction which is to be on the extreme outer edge of the right-of-way will consist of six creosoted wooden ducts in which will be laid lead-encased cables. It is planned to have this work done by Spring. In connection with this announcement it is stated that the Pennsylvania has practically completed the placing all of its wires underground between New York and Philadelphia, 90 miles.

### Canadian Railway Club Meeting

At the next meeting of the Canadian Railway Club to be held in Montreal on November 10, J. W. Kennedy, general supervisor of the production department of the Canadian Pacific will read a paper on the Analysis of Shop Output and Costs.

### November Meeting of Cleveland Railway Club

The next meeting of the Cleveland Steam Railway Club will be held on November 2. John P. Kelley, senior engineer of the Bureau of Signals and Train Control Devices of the Interstate Commerce Commission, will present a paper on the Character of Wheel and Rail Contact.

### Pacific Railway Club

The next meeting of the Pacific Railway Club will be held at the Hotel Oakland, Oakland, Calif., on November 12. It will be an "Associate Members' Night" and papers will be presented by various representatives from the supply field. There will be papers on the Relation of the Supply Industry to the Roads, Selling the Railroads and the Service of the Service Engineer.

### Telegraph and Telephone Officers

H. A. Shepard, general superintendent of electrical transmission and communication of the New York, New Haven & Hartford, has been elected chairman of the Telegraph and Telephone section. W. L. Cook, Reliable Electric Company, has been elected chairman of the Telegraph and Telephone Appliance Association, and G. A. Nelson, Waterbury Battery Company, has been elected secretary-treasurer.

### Railroad Changes in Mexico

Press reports from Mexico City, Mex., indicate that several mergers are expected to follow the proposed return of the National Railways of Mexico to private ownership. The Mexican Railway, which is British owned, is expected to take over a number of lines in the southern part of the country, which are likewise British owned, but which have been operated for several years as a part of the National Railways. Bertram Holloway, general manager of the Mexican Railway, is reported to have been appointed general manager of the National Railways of Mexico, to take office when the return of the National Railways to private ownership has been consummated.

### Cost of Locomotive Fuel

The average cost of coal used as fuel for road locomotives and charged to operating expenses in August was \$2.66 per ton, as compared with \$2.94 in August, 1924, according to the Interstate Commerce Commission's monthly statement, covering 159 Class I railways, excluding switching and terminal companies and switching locomotives. Fuel oil, however, cost 3.23 cents per gallon as against 2.86 cents last August and the total cost of coal and fuel oil for the month was \$26,305,785 as compared with \$26,375,435 last August. For the eight months ended with August 31 the total cost of coal and fuel oil was \$214,736,375, as against \$237,750,593 last year, a saving of approximately \$28,000,000 in coal being offset in part by an increase of approximately \$5,000,000 in fuel oil.

### Railroad Participation in "Golden Rule Sunday"

R. H. Aishton, president of the American Railway Association, has accepted the chairmanship of the Golden Rule Sunday co-operating committee on behalf of the railroad interests. The object of this committee is to further the observance of Golden Rule Sunday, December 6, as a means of promoting international good will. President Coolidge, Vice-President Dawes and more than one thousand leaders in all walks of life are sponsoring the day. The four transportation brotherhoods have indorsed the movement and are sending out letters to all locals.

On the first Sunday in December all the world is asked to give special consideration to the Near East Relief orphans of whom there are still 35,000 needing aid. Of these 80 per cent are less than 14 years of age.

## Freight Operating Statistics of Large Steam Roads — Selected Items for August, 1925,

## FREIGHT SERVICE

Region, road and year		Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line daily					
				Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, Excluding locomotive and tender	Net, Revenue and non-revenue	Serv-ice-able	Un-serv-ice-able	Per cent unserv-ice-able	Stored		
New England Region:															
Boston & Albany.....1925		404	244,614	269,273	34,968	5,159	69.5	264,755	105,171	118	20	14.4	5		
1924		394	241,545	257,037	26,447	4,793	67.8	248,429	97,466	122	21	14.7		...	
Boston & Maine.....1925		2,319	524,156	604,466	60,960	13,223	71.1	668,915	282,286	354	86	19.5	58		
1924		2,366	491,498	558,772	53,917	11,906	71.1	596,079	248,142	307	149	32.7	34		
N. Y., New H. & Hartf...1925		1,892	500,965	525,038	34,197	13,921	68.2	727,269	305,922	289	55	16.0	29		
1924		1,957	471,282	496,582	28,637	12,243	68.1	629,838	258,126	308	65	17.4	36		
Great Lakes Region:															
Delaware & Hudson.....1925		875	413,198	565,172	57,704	11,309	66.1	734,251	380,324	250	40	13.9	69		
1924		888	358,727	478,605	44,525	9,551	64.6	607,423	302,879	257	30	10.4	86		
Del., Lack. & Western....1925		993	574,297	676,260	84,913	18,214	70.3	996,128	450,545	298	49	14.0	49		
1924		993	514,662	592,399	78,284	16,274	70.1	898,681	402,495	298	66	18.2	45		
Erie (inc. Chic. & Erie)...1925		2,325	973,987	1,091,815	107,340	38,620	68.2	2,291,913	1,044,681	615	103	14.3	178		
1924		2,325	906,711	1,017,418	109,124	34,587	68.3	2,028,735	906,507	663	99	13.0	182		
Lehigh Valley.....1925		1,346	608,349	672,487	72,547	19,462	67.8	1,150,593	549,075	428	85	16.5	94		
1924		1,357	555,116	608,436	60,483	16,611	67.1	980,609	457,583	475	73	13.4	138		
Michigan Central.....1925		1,826	563,618	577,326	17,575	19,684	63.2	1,068,746	396,291	314	39	11.0	112		
1924		1,827	537,468	551,275	18,877	17,901	63.4	969,012	361,680	305	55	15.2	94		
New York Central.....1925		6,478	2,078,975	2,334,590	157,695	78,523	62.1	4,857,563	2,154,843	1,199	331	21.6	336		
1924		6,447	1,820,478	2,056,261	136,229	67,286	64.9	3,984,667	1,750,856	1,275	389	23.4	463		
New York, Chic. & St. L...1925		1,669	639,451	653,659	7,258	20,652	66.3	1,132,231	452,741	232	63	21.2	46		
1924		1,669	624,176	638,733	6,180	19,351	66.1	1,050,564	415,230	251	54	17.7	66		
Pere Marquette.....1925		2,198	421,853	432,023	7,678	10,713	64.9	616,275	279,485	194	14	6.8	33		
1924		2,227	382,898	394,367	10,159	9,501	62.9	551,385	249,180	187	26	12.2	36		
Pitta. & Lake Erie.....1925		231	122,108	124,284	1,235	4,157	64.5	311,919	179,997	76	15	16.4	34		
1924		231	105,203	108,182	812	3,677	65.5	281,180	170,153	68	19	21.4	16		
Wabash .....1925		2,497	676,600	708,492	12,527	22,400	69.3	1,239,143	528,319	326	64	16.3	74		
1924		2,459	627,533	657,085	10,208	19,829	70.4	1,068,076	452,134	313	54	14.6	67		
Central Eastern Region:															
Baltimore & Ohio.....1925		5,196	1,961,492	2,303,334	169,541	59,402	54.5	3,863,761	1,921,073	1,004	252	20.1	95		
1924		5,207	1,778,658	2,026,859	156,277	51,211	65.3	3,139,734	1,525,075	974	309	24.1	170		
Central of New Jersey....1925		691	302,815	334,272	39,550	7,753	59.0	528,723	255,267	242	35	12.7	36		
1924		692	282,009	307,189	33,560	6,798	60.1	448,417	212,767	235	43	15.6	37		
Chicago & Eastern Ill....1925		945	246,312	246,966	3,463	7,379	66.3	420,830	198,486	145	21	12.7	68		
1924		945	225,097	226,125	3,489	6,348	65.9	368,224	176,575	128	35	21.3	51		
Cleve. Cin., Chic. & St. L...1925		2,381	766,506	813,304	19,640	25,001	62.7	1,619,396	777,445	358	78	17.8	53		
1924		2,380	643,670	691,492	14,981	21,245	63.6	1,321,565	626,808	359	93	20.5	71		
Elgin, Joliet & Eastern...1925		460	120,680	127,146	4,439	3,836	66.6	283,732	151,401	68	20	22.5	3		
1924		460	89,981	95,544	3,688	2,952	67.9	210,014	111,718	87	11	11.6	23		
Long Island.....1925		393	51,718	55,163	13,480	725	58.4	45,865	18,386	42	11	20.3	...		
1924		393	44,068	46,138	6,941	556	58.2	34,401	13,295	41	15	26.2	4		
Pennsylvania System....1925		10,879	4,619,811	4,996,572	363,988	137,451	65.3	9,004,037	4,374,490	2,665	720	21.3	314		
1924		10,942	4,277,737	4,607,535	324,626	121,369	64.9	7,853,181	3,754,414	2,692	869	24.4	397		
Reading .....1925		1,132	689,105	756,959	70,469	18,645	61.8	1,300,676	678,933	394	73	15.7	95		
1924		1,141	603,998	662,221	63,753	15,020	64.0	986,396	503,971	434	76	14.9	155		
Pocahontas Region:															
Chesapeake & Ohio.....1925		2,627	1,255,700	1,322,711	46,482	40,127	56.6	3,187,506	1,759,593	482	100	17.1	6		
1924		2,555	1,040,006	1,107,291	36,114	32,475	58.4	2,552,067	1,396,111	439	93	17.5	12		
Norfolk & Western.....1925		2,231	912,429	1,112,426	38,676	30,809	59.5	2,593,350	1,393,607	598	61	9.3	149		
1924		2,231	836,033	1,009,439	29,935	25,582	61.3	2,010,559	1,073,487	587	95	13.9	180		
Southern Region:															
Atlantic Coast Line.....1925		4,899	760,889	780,854	14,128	18,943	63.8	1,072,709	441,016	381	62	14.0	51		
1924		4,865	619,196	628,976	9,957	15,104	64.6	807,703	334,145	412	62	13.0	114		
Central of Georgia.....1925		1,907	372,149	373,323	5,470	8,087	71.2	439,744	201,191	150	11	6.6	21		
1924		1,907	313,863	315,726	5,659	6,715	69.9	355,423	158,954	137	20	12.5	15		
I. C. (inc. Y. & M. V.)...1925		6,225	1,876,551	1,887,174	37,598	54,202	64.4	3,374,704	1,481,092	755	109	12.6	32		
1924		6,197	1,652,392	1,669,443	35,509	48,739	65.4	2,955,806	1,286,780	780	121	13.4	97		
Louisville & Nashville....1925		5,027	1,873,348	1,987,798	64,549	37,350	62.1	2,503,245	1,237,558	622	101	14.0	18		
1924		5,026	1,628,276	1,725,437	62,833	31,808	63.6	2,039,598	990,985	610	116	15.9	54		
Seaboard Air Line.....1925		3,752	543,713	560,447	7,751	13,734	65.9	765,627	322,248	227	22	8.8	4		
1924		3,547	458,957	470,896	5,730	10,790	66.4	579,042	234,795	214	47	17.8	20		
Southern Ry.....1925		6,840	1,514,592	1,551,067	34,230	36,032	67.2	1,985,265	826,068	839	111	11.7	71		
1924		6,840	1,404,048	1,434,078	30,569	32,485	67.5	1,760,040	719,290	871	115	11.7	41		
Northwestern Region:															
Chic. & North Western....1925		8,463	1,577,685	1,626,274	30,574	40,281	63.0	2,389,433	987,946	732	210	22.3	96		
1924		8,463	1,591,811	1,654,214	24,352	37,969	64.0	2,200,404	922,761	812	236	22.5	122		
Chic., Milw. & St. Paul...1925		11,202	1,710,576	1,820,026	94,828	51,740	63.2	3,004,048	1,303,194	891	178	16.6	136		
1924		10,983	1,551,359	1,606,238	67,893	44,329	65.5	2,516,581	1,110,648	945	160	14.5	142		
Chic., St. P., Minn. & Om...1925		1,726	367,825	391,643	16,659	7,386	70.8	390,867	172,824	168	36	17.5	4		
1924		1,726	334,282	364,352	14,558	6,590	68.0	372,340	157,871	167	38	18.6	1		
Great Northern.....1925		8,232	941,958	974,607	53,578	32,965	60.0	2,074,828	967,320	577	168	22.5	90		
1924		8,251	807,232	827,903	40,351	27,098	62.7	1,650,509	781,336	591	156	20.9	113		
M., St. P. & S. Ste. M....1925		4,372	591,816	606,851	6,388	14,869	67.3	793,182	357,829	291	51	15.0	18		
1924		4,374	494,481	505,154	7,221	12,101	69.8	625,677	279,951	291	52	15.2	12		
Northern Pacific.....1925		6,527	932,663	980,560	51,936	29,669	65.6	1,701,694	729,687	530	159	23.0	87		
1924		6,416	788,915	824,348	44,989	23,964	67.3	1,345,354	580,679	584	152	20.6	132		
Öreg.-Wash. R. R. & Nav...1925		2,175	209,963	225,569	22,958	6,315	71.6	356,855	164,532	139	23	14.1	10		
1924		2,169	208,864	224,343	20,485	5,828	7								



## Compared with August, 1924, for Roads with Annual Operating Revenues Above \$25,000,000

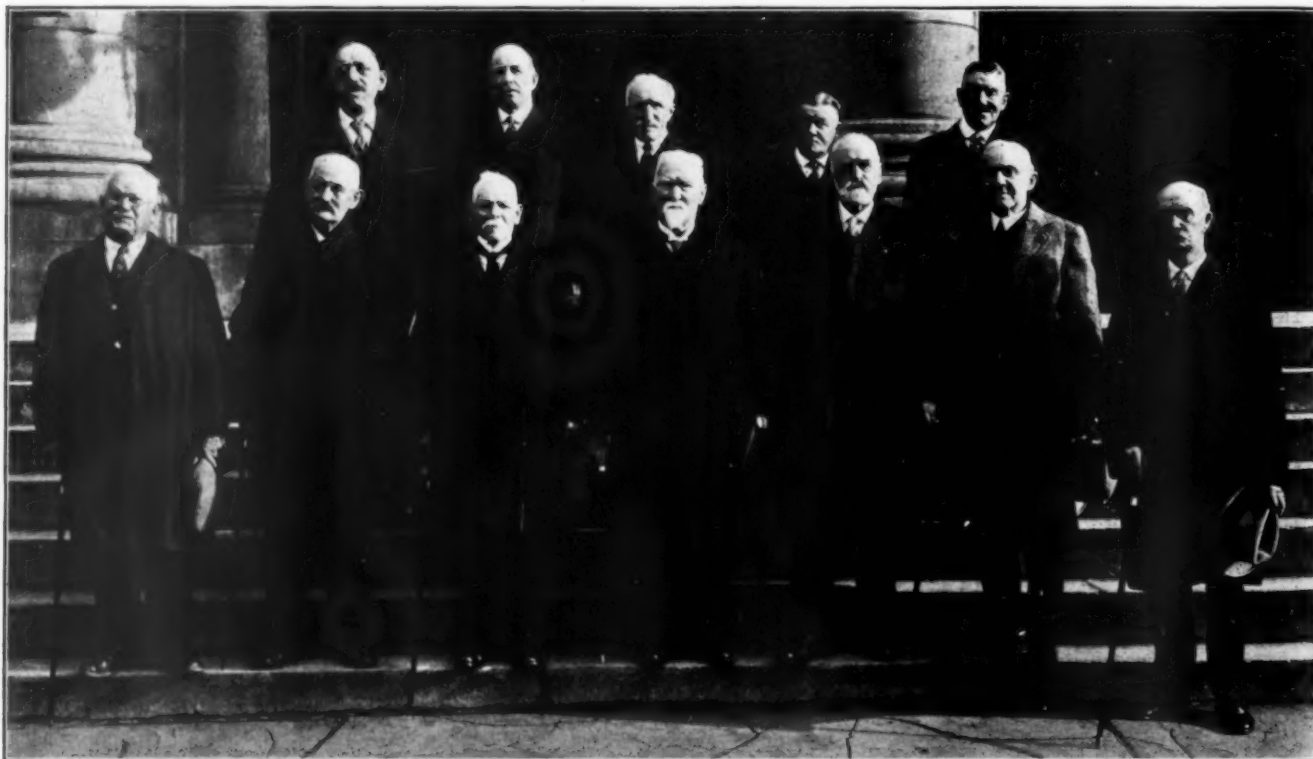
Region, road and year		Average number of freight cars on line daily					Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton- miles per car-day	Car miles per car-day	Net ton- miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomo- tive miles per locomo- tive day	
		Home	Foreign	Total	Per cent un- servi- ce-	Stored									
New England Region:															
Boston & Albany.....1925		2,448	6,114	8,562	3.0	...	1,082	430	20.4	392	27.7	8,395	179	71.5	
1924		2,746	4,754	7,500	5.2	...	1,028	403	20.3	419	30.4	7,981	189	63.7	
Boston & Maine.....1925		13,930	13,025	26,955	9.7	...	1,276	539	21.3	337	22.2	3,926	130	48.9	
1924		14,843	13,668	28,511	12.7	...	1,213	505	20.8	281	18.9	3,383	131	43.3	
N. Y., New H. & Hartf...1925		21,071	19,735	40,806	22.3	574	1,452	611	22.0	242	16.1	5,216	120	52.5	
1924		21,693	15,851	37,544	21.8	704	1,336	548	21.1	222	15.4	4,254	130	45.5	
Great Lakes Region:															
Delaware & Hudson...1925		8,475	7,185	15,660	7.4	...	1,777	920	33.6	783	35.2	14,018	157	69.1	
1924		9,588	5,442	15,030	7.0	...	1,693	844	31.7	650	31.7	11,003	168	58.8	
Del., Lack. & Western...1925		16,392	8,087	24,479	3.3	70	1,735	785	24.7	593	34.1	14,643	153	70.8	
1924		18,887	7,322	26,209	4.7	670	1,746	782	24.7	495	28.5	13,081	152	59.5	
Erie (inc. Chic. & Erie)...1925		37,289	20,573	57,862	8.3	8,404	2,353	1,073	27.1	582	31.6	14,492	114	53.9	
1924		38,233	18,280	56,513	7.1	12,751	2,237	1,000	26.2	517	28.9	12,578	119	47.7	
Lehigh Valley.....1925		19,873	8,937	28,810	6.2	225	1,891	903	28.2	614	12.1	13,162	141	46.9	
1924		23,247	8,276	31,523	7.0	1,109	1,766	824	27.5	468	25.3	10,881	133	39.4	
Michigan Central.....1925		14,451	18,408	32,859	4.8	1,860	1,896	703	20.1	389	30.6	7,001	102	54.4	
1924		16,296	13,913	30,209	5.2	2,648	1,803	673	20.2	386	30.1	6,387	113	51.2	
New York Central.....1925		68,675	68,749	137,424	4.6	11,855	2,337	1,036	27.4	505	29.6	10,731	109	52.6	
1924		72,850	61,372	134,222	5.2	20,656	2,189	962	26.0	420	24.9	8,761	112	42.5	
New York, Chic. & St. L...1925		13,075	11,322	24,397	6.1	3,412	1,771	708	21.9	598	41.1	8,752	104	72.4	
1924		11,678	10,270	21,948	6.2	1,393	1,683	665	21.5	610	42.9	8,027	110	68.4	
Pere Marquette.....1925		9,403	9,996	19,399	4.8	261	1,461	663	26.1	464	27.4	4,101	103	68.0	
1924		10,288	10,452	20,740	7.2	898	1,440	651	26.2	388	23.5	3,609	111	61.2	
Pitts. & Lake Erie.....1925		15,246	6,403	21,649	7.0	1,384	2,554	1,474	43.3	268	9.6	25,086	64	44.4	
1924		16,634	6,427	23,061	3.0	3,099	2,673	1,617	46.3	238	7.8	23,714	66	40.5	
Wabash .....1925		14,287	12,062	26,349	3.1	825	1,831	781	23.6	646	39.5	6,825	116	59.6	
1924		13,638	9,172	22,810	3.6	1,220	1,702	720	22.8	639	39.9	5,931	124	58.7	
Central Eastern Region:															
Baltimore & Ohio.....1925		72,032	37,861	109,893	8.3	3,025	1,970	979	32.3	564	27.0	11,926	150	63.5	
1924		73,290	31,285	104,575	13.1	7,215	1,765	857	29.8	470	24.2	9,448	156	54.9	
Central of New Jersey.....1925		16,806	11,278	28,084	5.6	1,724	1,746	843	32.9	293	15.1	11,918	147	43.6	
1924		18,582	9,480	28,062	5.0	2,817	1,590	754	31.3	245	13.0	9,918	171	39.5	
Chicago & Eastern Ill.....1925		14,251	4,642	18,893	17.3	1,765	1,709	806	26.9	337	18.9	6,775	125	48.6	
1924		15,556	4,388	19,944	17.0	3,490	1,636	784	27.8	284	15.5	6,027	138	45.5	
Cleve. Cin., Chic. & St. L...1925		19,227	19,216	38,443	5.2	5,070	2,113	1,014	31.1	622	33.1	10,534	110	61.7	
1924		17,700	18,639	36,339	5.9	3,962	2,053	974	29.5	529	29.3	8,496	116	50.4	
Elgin, Joliet & Eastern...1925		9,724	7,610	17,334	7.0	1,515	2,351	1,255	39.5	282	10.7	10,622	113	48.2	
1924		9,669	5,363	15,032	7.5	1,762	2,334	1,242	37.8	240	9.3	7,838	117	32.7	
Long Island.....1925		1,955	5,769	7,724	1.0	...	887	356	25.4	77	5.2	1,508	201	42.4	
1924		1,865	4,123	5,988	0.9	98	781	302	23.9	72	5.2	1,090	275	30.7	
Pennsylvania System.....1925		213,046	87,749	300,795	11.4	23,301	1,949	947	31.8	469	22.5	12,971	119	51.1	
1924		206,269	86,684	292,953	10.3	35,037	1,836	878	30.9	413	20.6	11,069	126	44.7	
Reading .....1925		22,851	15,349	38,200	2.8	988	1,887	985	36.4	573	25.5	19,354	145	57.2	
1924		25,290	12,569	37,859	2.5	4,684	1,633	834	33.6	429	20.0	14,253	161	46.0	
Pocahontas Region:															
Chesapeake & Ohio.....1925		29,390	11,309	40,699	3.7	614	2,538	1,401	43.9	1,393	56.1	21,605	100	75.9	
1924		27,044	11,875	38,919	5.9	530	2,454	1,342	43.0	1,156	46.0	17,627	106	69.4	
Norfolk & Western.....1925		28,833	9,914	37,847	3.7	...	2,842	1,527	45.2	1,187	44.0	20,147	129	56.4	
1924		30,222	8,977	39,199	5.0	2,045	2,405	1,284	42.0	883	34.3	15,523	151	49.2	
Southern Region:															
Atlantic Coast Line.....1925		19,520	12,544	32,064	4.3	...	1,416	580	23.3	438	29.5	2,904	113	57.9	
1924		20,838	8,953	29,791	4.8	...	1,304	540	22.1	356	25.0	2,216	121	43.5	
Central of Georgia.....1925		4,027	7,470	11,497	6.0	...	1,182	541	24.9	564	31.8	3,404	142	75.9	
1924		4,694	4,898	9,592	6.1	...	1,132	506	23.7	534	32.3	2,689	145	66.0	
I. C. (inc. Y. & M. V.)...1925		44,139	22,863	67,002	6.1	...	1,798	789	27.3	712	40.4	7,675	120	71.9	
1924		44,275	20,343	64,618	7.9	1,480	1,789	779	26.4	641	37.2	6,698	119	61.0	
Louisville & Nashville.....1925		42,078	18,712	60,790	13.9	78	1,336	661	33.1	654	31.8	7,941	148	91.5	
1924		42,732	17,349	60,081	13.9	107	1,253	609	31.2	530	26.7	6,361	149	79.5	
Seaboard Air Line.....1925		10,976	10,065	21,041	2.9	...	1,408	593	23.5	494	31.9	2,770	135	73.6	
1924		10,218	6,470	16,688	6.7	...	1,262	512	21.8	454	31.3	2,136	140	59.0	
Southern Ry.....1925		40,120	20,455	60,575	4.7	...	1,311	545	22.9	438	28.5	3,896	155	53.8	
1924		39,772	18,874	58,646	5.9	...	1,254	512	22.1	396	26.5	3,392	165	47.9	
Northwestern Region:															
Chic. & North Western...1925		50,816	27,743	78,559	10.3	...	1,515	626	24.5	405	26.2	3,766	119	56.7	
1924		49,741	28,263	78,004	10.1	...	1,382	580	24.3	381	24.5	3,517	130	51.7	
Chic., Milw. & St. Paul...1925		55,609	25,769	81,378	7.7	...	1,756	762	25.2	516	32.4	3,753	129	57.8	
1924		56,081	24,623	80,704	7.6	...	1,622	716	25.1	443	27.0	3,262	134	48.9	
Chic., St. P., Minn. & Om...1925		3,331	8,331	11,662	11.9	1,149	1,063	470	23.4	478	28.8	3,230	137	64.8	
1924		3,937	9,639	13,576	9.5	719	1,113	472	24.0	374	22.9	2,950	126	59.8	
Great Northern.....1925		46,381	14,917	61,298	7.3	...	2,203	1,027	29.3	502	28.6	3,791	114	44.5	
1924		50,284	10,112	60,396	8.0	...	2,045	968	28.8	413	22.9	3,055	116	37.5	
M., St. P. & S. Ste. M...1925		20,847	7,707	28,554	4.6	2,801	1,340	605	24.1	403	24.9	2,640	103	57.8	
1924		21,637	7,165	28,802	6.0	5,021	1,265	566	23.1	312	19.3	2,065	108	48.2	
Northern Pacific.....1925		38,000	9,443	47,443	6.6	4,044	1,825	782	24.6	495	30.6	3,607	125	48.3	
1924		36,212	9,102	45,314	6.8	4,217	1,705	736	24.2	412	25.3	2,919	117	38.1	
Oreg.-Wash. R. R. & Nav...1925		7,273	4,575	11,848	4.8	...	1,700	784	26.1	447	23.9	2,441	173	49.5	
1924		5,971	4,909	10,880	4.3	...	1,577	726	26.0	450	24.2	2,256	175	47.3	
Central Western Region:															
Atch., Top. & S. Fe (incl. 1925		59,853	17,851	77,704	6.3	16,677	1,869	672	21.1	470	35.0	3,653	113	62.6	
P															

### Secretary Mellon Expected to Succeed Director General Davis

Progress in winding up the affairs of the United States Railroad Administration has reached such a point that Director General James C. Davis is expected to retire about the first of next year; and it is understood that President Coolidge has decided to appoint Secretary Mellon of the Treasury Department to act as the agent of the President to complete the liquidation. Settlements have been completed with the railroads that were operated by the government but the notes with which their indebtedness to the government was funded are still outstanding in many cases and, together with the collateral, are in the custody of the Treasury. There are also many accounts between the Railroad Administration and third persons yet to be settled and some litigation, which would continue to be handled by the legal department of the Railroad Administration.

### C. N. R. Pensioners Honored

Five hundred thirty-four years is the aggregate length of the railroad service of the twelve locomotive runners of the Canadian National, now retired on pension, whose portraits are here shown.



Pensioned Enginemen of the Canadian National

Names, with years of service: Left to right (back row): D. Trindall, 38; J. W. Conrad, 45; K. McCaig, 38; T. T. Clements, 45; H. Clements, 46; (front row): G. Dade, 50; W. L. Dutel, 53; J. Biggs, 35; D. Simpson, 47; G. Munro, 38; F. Payette, 53, and J. McConnell, 46.

The picture was taken on the occasion of the presentation to each man of an engraved walking stick, the gift of members of Division 86 of the Brotherhood of Locomotive Engineers.

### Woman Appointed U. S. R. A. Attorney

Elizabeth Hyde, secretary to James C. Davis, director general of railroads, has been appointed attorney of the United States Railroad Administration, with office at Washington, D. C. She is a native of Iowa and received her education at public schools, business college and law college. She acted in the capacity of stenographer, secretary and chief clerk in the general offices of the law department of the Chicago & North Western, prior to her being appointed secretary to Mr. Davis at Washington. Miss Hyde graduated from the Washington College of Law with highest honors in June, 1925, winning the class prize for each of the four years. She was admitted to practice before the supreme court of the District

of Columbia on February 9, 1925, prior to her graduating from the law college. She was admitted to practice before the court of appeals on February 11, 1925, and was admitted to practice before the court of claims on October 19, 1925.

### Southern's John Sevier Terminal in Operation

The New John Sevier freight terminal of the Southern, located six miles east of Knoxville, Tenn., and the four-mile double-track belt line connecting it with the Middlesboro line at Beverly, on which work was begun in July, 1924, were placed in service on October 26. The terminal includes a classification yard with 50 miles of track and capacity for 3,500 cars, modern engine handling facilities, a transfer station for handling less-than-carload freight moving through Knoxville, refrigerating station for icing perishables and pens in which live stock can be rested, fed and watered.

The classification yard is built in two distinct units, each including receiving and make-up sections. The engine terminal includes a 35-stall round house, a mechanical coal chute, sand and cinder handling plant, water supply and machine shop for running repairs. The transfer station will take rank with the large stations which the Southern operates at Spencer, N. C., Inman Yards, Ga., and Hayne, S. C., and will greatly facilitate the handling

of package freight through the Knoxville gateway. The movement of freight trains will be expedited by use of the belt line over which will be diverted a heavy tonnage which has previously been handled through the industrial district of Knoxville. The John Sevier Terminal is named for the pioneer settler and revolutionary hero who was elected the first governor of Tennessee.

### State Versus Federal Control of Railroad Construction

The power of a state in opposing an order of the Interstate Commerce Commission is the chief issue of a suit soon to come before the Illinois Supreme Court. The case is that of the state of Illinois against the Illinois Central, growing out of a dispute over the construction by this company through subsidiary companies, of the "Edgewood cut-off" extending from Edgewood, Ill., south to Fulton, Ky., both points on the present main line. Authority for the construction of this line was granted by the



Interstate Commerce Commission but was refused by the Illinois Commerce Commission.

The contention of the railroad is that the Interstate Commerce Commission has full authority in matters of this sort, taking precedence over state laws and state charters. The state of Illinois, backed by organizations from cities on the present main line, opposes this view, its contention being that the Illinois Central cannot build such a line under its present charter and that neither can it build such a line indirectly through subsidiary companies. The complainant contends that the new line would be a parallel and competing one and as such could not be lawfully operated by the Illinois Central. The state holds also that the proposed line would receive a large amount of traffic diverted from the present main line upon which the railroad pays to the state, under its charter, 7 per cent of the gross income. The state estimates that its loss from this cause will be approximately \$1,000,000 annually. The state will be represented before the court by Attorney General Carlstrom, Assistant Attorney General Kelly and others.

### Canadian Roads Continue Improvement

Both the gross and the net earnings of the Canadian National showed substantial increases during September, 1925, as compared with the same month last year. The gross earnings show an increase of \$3,294,804, or 17.06 per cent, while the net earnings increased \$1,792,615, or 83.48 per cent. For the first nine months of this year the net earnings amounted to \$12,325,763, as against \$6,075,820 last year, or an increase of over 102 per cent.

A comparison of the 1925 figures with those of 1923, which proved to be the most profitable year the company has enjoyed, gives an equally favorable result, the increase in the September, 1925, net, as against the corresponding period of 1923, being \$2,090,614, or 113.04 per cent, and for the nine months' period, \$5,396,068, or 77.87 per cent.

The summary of results in 1925 and 1924 is as follows:

	September 1925	September 1924	Inc.
Gross earnings .....	\$22,606,263	\$19,311,459	\$3,294,804
Op. expenses .....	18,666,192	17,164,003	1,502,189
Net earnings .....	3,940,071	2,147,456	1,792,615
Nine Months—			
Gross earnings .....	169,268,260	172,484,625	*3,216,365
Op. expenses .....	156,942,497	166,408,805	*9,466,308
Net earnings .....	12,325,763	6,075,820	6,249,943
*Decrease.			

Detailed figures for August show gross revenues greater than in the same month last year by \$1,876,926 or 22 per cent. Freight

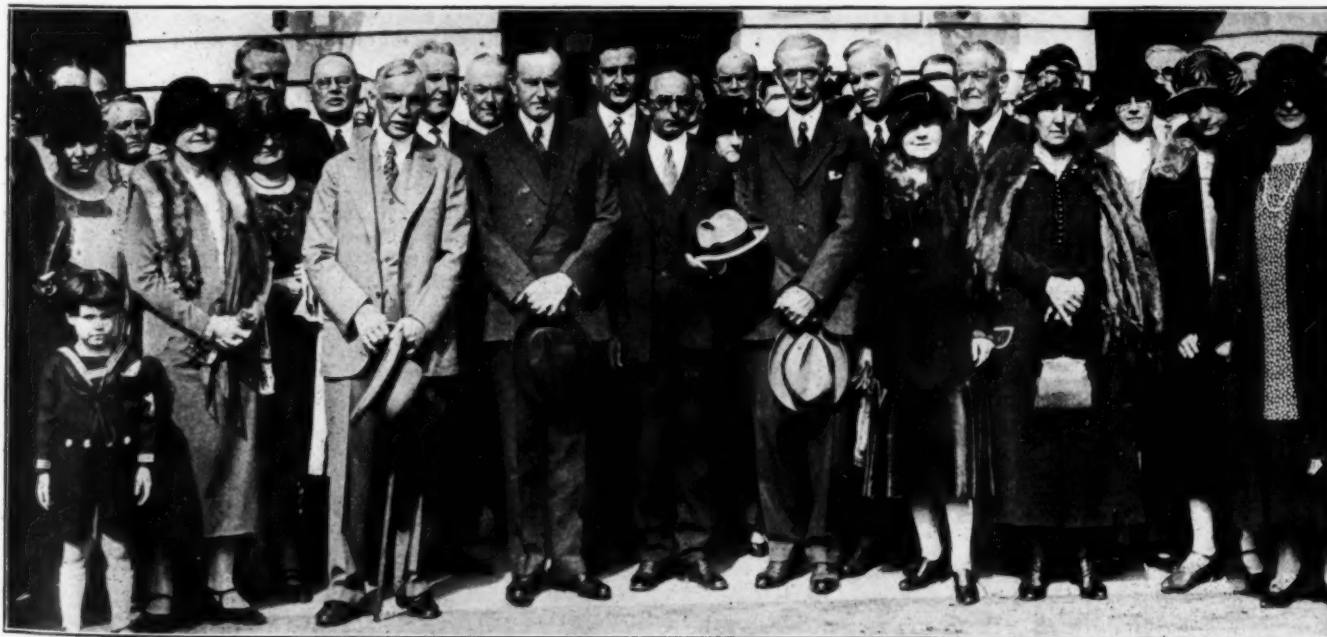
revenues increased \$1,614,251 or 17.2 per cent. Passenger revenues increased by \$160,087 or 4.1 per cent with the passenger traffic heavier by 13.4 per cent and an increase in the average journey of from 71.7 miles in 1924 to 89.8 miles.

Operating expenses were increased by \$227,992 or 1.5 per cent. Maintenance of equipment showed a reduction of \$103,748 or 3 per cent., but maintenance of way and structures was greater by \$227,436 or 6.3 per cent. Transportation expenses were heavier by \$156,303 or 2.2 per cent and traffic expenses showed an increase of \$49,928 or 11.2 per cent while general expenses showed a reduction of \$74,946 or 13.5 per cent. Freight train loading showed an increase of 23.4 revenue tons and the average car load was half a ton heavier.

Freight revenues of the Canadian Pacific for August were \$1,241,422 or 15.8 per cent heavier than in the same month last year, and passenger revenues were greater by \$201,340 or 5.2 per cent, although both were below those of August, 1923. Gross revenues were greater by \$1,137,213 or 7.9 per cent and with an increase in operating expenses of only \$89,523 net revenues were increased by \$1,047,690. Maintenance of way and structures were cut \$250,752 or 10.7 per cent and traffic expenses were reduced by \$15,655, but all other accounts showed increases, the net increase in the total being less than one per cent.

The average revenue freight tonnage per train was comparatively light and the revenues per train mile were slightly under those of August last year. Passenger train revenues per train mile were practically unchanged although the number of passengers was greater by 11 per cent. The average passenger train journey, 133.5 miles, was exceptionally long even for August, and with a decrease in the number of passengers carried and an increase in passenger miles, means that the entire decrease was in the short haul traffic with an increase in the long haul traffic. For the eight months gross revenues were \$7,345,185 less than in 1924, but through reductions in operating expenses net revenues were increased by \$203,739 over 1924 and were also greater than in 1923 by \$2,489,482.

Total operating revenues for the month of August on the Canadian Pacific Railway were \$15,534,569.07, as compared with \$14,397,355.87 in the same month last year; operating expenses amounted to \$11,206,172.36, as against \$11,116,649.32; net operating revenues were \$4,328,396.71, as against \$3,280,706.55; and operating income was \$4,181,781.22, as against \$3,168,590.55. For the eight months operating revenues totalled \$105,239,949.78, as compared with \$112,585,134.04; operating expenses amounted to \$89,846,828.27, as against \$97,395,751.33; net operating revenues were \$15,393,121.51, as compared with \$15,189,382.71; and operating income was \$15,368,302.73, as against \$15,898,236.95.



Wide World

Public Utilities Commissioners in Session at Washington, Photographed with the President

## Traffic News

The Judson Freight Forwarding Company, 82 Beaver street, New York, announces that C. A. Hall has been appointed general freight agent of the company for eastern territory. The Judson Freight Forwarding Company, carrying on a "consolidated car service," has offices in Chicago, Boston, Detroit, Los Angeles, Milwaukee, Philadelphia, Pittsburgh, St. Louis and San Francisco.

The Keystone Freight Corporation, New York City, announces that it has inaugurated a daily consolidated car service between New York and Chicago. The company, which is a freight forwarding organization, has also arranged for connections at Chicago for Council Bluffs, Davenport, Des Moines, Denver, Kansas City, Minneapolis, Topeka and a dozen other cities. There are Keystone receiving stations throughout Manhattan, Brooklyn, Jersey City and Hoboken.

The White Company, Cleveland, Ohio, announcing the purchase of additional White buses by the Cleveland (street) Railway Company, adds that 249 electric lines, more than one-quarter of all the traction companies in the United States, are now using buses to supplement their trolley car service; and it is estimated that 4,400 buses are now in use in this class of service; double the number reported a year ago. The White Company claims to have furnished more than one-quarter of these buses.

Congestion of freight traffic continues troublesome in Florida. The Atlantic Coast Line, the Seaboard Air Line and the Southern Railway have placed an embargo on certain classes of goods consigned to that State because of heavy shipments which have overtaxed facilities. The Seaboard is carrying foodstuffs and live stock, but has put up the bars against carload lots of other freight. The Atlantic Coast Line is refusing freight for the West Coast. The Southern has embargoed all shipments to points on the Florida East Coast.

The daily average movement per freight car in August was 29.5 miles a day, the highest average ever attained in any August, according to reports compiled by the Bureau of Railway Economics. Compared with August last year, this was an increase of 2.9 miles while it also was an increase of 1.2 miles over the average for 1923. The average load per freight car in August was 27.8 tons, an increase of seven-tenths of a ton compared with August last year. It was, however, a decrease of seven-tenths of a ton below the average for August, 1923.

### Claim Payments Reduced

Claims paid to freight shippers by the railroads during the first six months this year for loss on certain commodities in which theft has always been one of the major causes, were more than 36 per cent less than were paid during the corresponding period in 1924, according to reports received by the American Railway Association.

Freight claims, for instance, on boots and shoes were 50 per cent less, and on clothing, dry goods and notions, 40 per cent. On tobacco, a decrease of nearly 39 per cent was reported and on automobiles, 47 per cent.

In 1920, claims paid for "unlocated loss" of entire package, due mainly to theft and improper handling of freight, cost the railroads \$19,000,000, while such claims for the entire year 1925, it is estimated, will not exceed \$2,500,000, of which \$750,000 represents shortages from carload shipments.

### Passenger Surcharge Fare in North Carolina

The Interstate Commerce Commission has ordered the railroads operating in North Carolina to put into effect on intrastate traffic the 50 per cent surcharge for Pullman passengers which is applied to interstate traffic. The legislature of North Carolina abolished the surcharge intrastate on March 19, 1923, and on petition of the railroads, the commission finds that this is unduly preferential of intrastate traffic.

### Illinois Commission Enjoined

A temporary injunction restraining the Illinois Commerce Commission from interfering with the order issued on October 6 by the Interstate Commerce Commission, allowing the Chicago & North Western to make effective a 20 per cent increase in its suburban fares, was issued by three federal judges in Chicago on October 23. The state was represented by Attorney General Oscar E. Carlstrom who argued that the Interstate Commerce Commission had transgressed its powers in issuing the order. The court said that in issuing the temporary injunction the decision of the Supreme Court was being followed. The Illinois Commerce Commission will continue its hearing and complete the taking of evidence for the purpose of presenting its case when a hearing is called to make the injunction permanent. No date has been set for the latter hearing.

### Northwestern Roads May Ask Greater Rate Advance

Northwestern railroads are said to be considering a plan for asking the Interstate Commerce Commission to approve advances in freight rates on certain commodities which would result in larger advances for the roads in the Northwestern region than would be provided by the five per cent increase asked by the western roads generally, in the case now on hearing before Chairman Aitchison, at Chicago. A delegation of western railroad executives discussed such a plan at a conference at Washington on October 20, with members of Division 6 of the commission, which is in charge of the western rate case and of the commission's investigation under the Hoch-Smith resolution.

It is understood that some of these roads are inclined to oppose such a move on the ground that it would delay or otherwise jeopardize the results of their application for a five per cent advance, and that the conference in Washington was in an effort to obtain some idea of what the attitude of the commission would be toward such a proposal. There has been some criticism of the position of the western roads to the effect that the five per cent application would not meet the needs of the northwestern lines for additional revenues while it would give some roads more than they need.

It is understood that the members of the commission gave no assurances.

### Cotton Fluctuations Little Affected by Freight Rates

That quality and grade of cotton, together with other general elements of supply and demand, and not freight rates, are the important factors in establishing the prices paid to growers of cotton, is shown by a study just completed by the Bureau of Railway Economics. Because less than half of the cotton produced in the United States is consumed in this country, the price paid cotton producers here is greatly influenced by the demand in foreign countries. The average yearly production from 1920 to 1924 amounted to 11,000,000 bales, of which approximately 5,900,000 bales were exported. The study shows: (1) That fluctuations in prices paid cotton growers are many times the freight rate to consuming markets; (2) That these fluctuations exceed freight rates to the most distant consuming centers, and are very irregular from week to week; (3) That there are no uniform fluctuations in prices in the same general territory.

"During the seasons 1923-1924 and 1924-1925," according to the study, "the spread in prices for middling cotton ranged from a minimum of \$8 to a maximum of \$16.38 per 100 lb. or from five to thirteen times the freight rate from various producing centers in the south to Fall River, Mass. During the two seasons cited the fluctuations in prices were many times the freight rates for the movements shown. For example, the spread in prices at Collin, Miss., amounted to \$16.38, which was more than fifteen times the highest freight rate in effect during the period to Columbus, Ga., and more than 23 times the export rate to New Orleans. During the 1924-1925 season alone, prices at Chester, S. C., fluctuated from \$20.00 to \$28.50, or \$8.50 per 100 lb. This spread was more than 17 times the freight rate to Greenville, S. C., 13 times the export rate to Savannah, Ga., almost 20 times the rate to Columbia, S. C., and more than 20 times the rate to Maiden, N. C. There were changes in freight rates covering some of the movements shown during the periods of study but they were downward in almost every instance."



## Commission and Court News

### Court News

#### Flagmen at Village Street Crossings—Law Repealed

The Illinois Supreme Court holds that that part of subsection 27, section 1, Art. 5 of the Cities and Villages Act which authorized cities and villages organized under the act to require railroad companies to keep flagmen at railroad crossings of streets was impliedly repealed by the Public Utilities Act.—*Village of Atwood v. Cincinnati, Indianapolis & Western*, 316 Ill. 425, 147 N. E. 449.

#### Operation of Railroad Held Not

##### Proximate Cause of Fire

In an action against a railroad company under Ohio Gen. Code, section 8970, for damages for loss of property by fire, caused by operating the railroad, the Ohio Supreme Court holds, that, the record disclosing that the proximate cause of the fire was not the operation of the railroad, but the act of the property owner's agent, it was the duty of the trial court upon motion to direct a verdict for the railroad. Failure to do so was held prejudicial error; judgment against the road reversed.—*Davis v. Atlas Assur. Co.* (Ohio) 147 N. E. 913.

#### Assessment for Benefits of Water Supply

##### to Right of Way Held Invalid

Where a railroad had an adequate private water supply system, and the only benefit it could derive from the construction of a village water system would be in case of failure of its own supply, the probability of which was extremely remote, the Illinois Supreme Court holds that an ordinance for the assessment of benefits to its yards and tracks was unreasonable, unjust, oppressive and void. The court said: "There may be conditions justifying the assessment of benefits against a railroad right of way, but they are rather unusual."—*Village of Bensenville v. Chicago, M. & St. P.*, 316 Ill. 352, 147 N. E. 122.

#### Illinois Commission's Authority

##### to Reduce Rates Limited

The Illinois Supreme Court holds that the statute empowering the State Commerce Commission to make investigations with reference to the reduction and regulation of rates of public utilities contemplates that hearings of the commission and orders entered in such matters shall be limited to the complaint filed, and the commission cannot enter a valid order broader than the complaint. When coal mining companies filed a complaint against railroads asking reduction of rates within a 20-mile radius of a specified centre, an order of the commission reducing rates within and also beyond such radius was held beyond the commission's authority.—*Alton & Southern v. Illinois Commerce Commission*, 316 Ill. 625, 147 N. E. 417.

#### Final Carrier Held Not Liable for Delay

Cattle in transit from Melrose, N. M., to Fort Worth, Tex., over three lines had been on the cars for 35½ hours when they arrived on the final carrier's line at Sweetwater. As the running time from Sweetwater to Fort Worth was 20 hours, it became necessary to unload the cattle for feed and water. This was done, and the cattle arrived at destination too late for the proposed market. The cattle could not possibly have been transferred to the stock pens, unloaded, held for five hours as required by the statute, reloaded and switched to the main line in time to go forward on the stock train that day. The Texas Court of Civil Appeals holds that, as there was no evidence that, using ordinary care, the final carrier could have delivered the cattle in time for the desired market, the final carrier was not liable for loss by delay. The theory that its negligence caused or contributed to cause the loss of the market was not accepted.—*Atchison, T. & S. F. v. Ohlhausen* (Tex. Civ. App.) 272 S. W. 224.

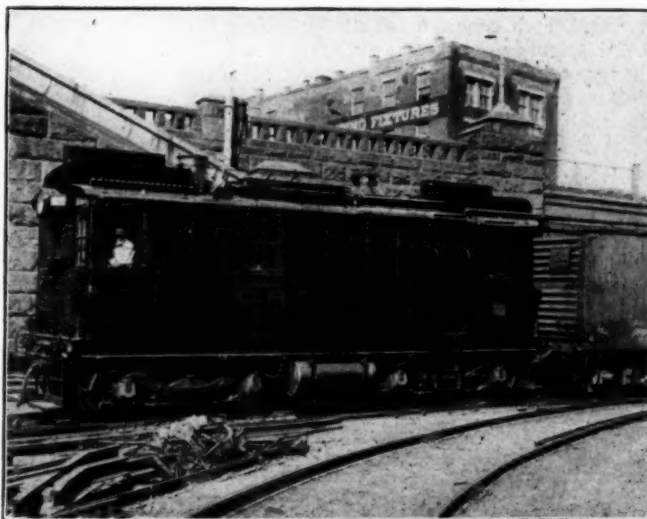
## Labor News

In a decision on the Western Maryland engine service employees' case, in which the Railroad Labor Board intervened after a strike had begun, the board directed the parties in the dispute to resume conferences with a view to re-establishing peaceful conditions on the property. After such conditions have been restored the board plans to hear further arguments on the questions in dispute.

Officers of all the railway labor organizations met at Cleveland, Ohio, on October 24, to confer on plans for a concerted effort to induce Congress to revise the labor provisions of the Transportation Act. D. B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, and chairman of the meeting, announced that the brotherhoods and other unions would attempt to have the Howell-Barkley bill re-introduced in the coming session of Congress. This bill failed of passage in the last Congress.

Railroads and freight shippers in western trunk line territory are holding conferences to iron out differences of opinion on the revision of class rate adjustments in western trunk line territory, with a view to avoiding the delay and expense resulting from the ordinary procedure before the federal and state regulatory tribunals. A meeting was held on October 16 in the office of the Chicago Association of Commerce at which the principal shipping interests of the western trunk line territory were represented. On the following day a joint conference of the shippers' "steering committee" and a committee of the western roads was held and the joint discussion resulted in a better understanding of the issues involved. Further conferences will be held as the Interstate Commerce Commission hearing progresses.

Fear of retaliation which might be detrimental to the railroad was given by Ralph Budd, president of the Great Northern, before the Railroad Labor Board on October 21, as the reason why the Great Northern had disregarded instructions of the board to negotiate with the Switchmen's Union of North America instead of the Brotherhood of Railroad Trainmen as the representative of its switchmen. Mr. Budd said that he felt the Brotherhood of Railroad Trainmen would feel justified in going to serious lengths if the Great Northern should cancel its existing contract with the brotherhood covering the switchmen. Chairman Hooper of the Labor Board, however, replied that the only course open to the Great Northern was to recognize the switchmen's union in compliance with the board's order. Citation of the Great Northern as a violator of a decision of the Labor Board is expected to follow if the road continues to recognize the trainmen's organization.



International

New Ingersoll-Rand-American Diesel-Electric Locomotive in Service on the Central of New Jersey

## Foreign Railway News

### Possibility of Improved Service on the Trans-Siberian

Representatives of the Japanese Government Railways are reported to be in Moscow to confer with Soviet authorities on the proposed re-establishment of through service between Paris and the Far East via the Trans-Siberian Railway. Conferences between representatives of the Polish government and the Soviet government have already been held to discuss the same subject.

### Railway Construction in Russia

Several new railway lines are in course of construction in Siberia, tapping districts rich in grain and ore, according to a statement made by the Russian Information Bureau in Washington. Work is being pushed on the South Siberian trunk line, which will connect Orsk, on the border of European Russia, with Barnaul, a distance of 1,250 miles. The greater part of this line has already been completed.

One line under construction will connect the Trans-Siberian Railway at Petropavlovsk with Kokchetav, 150 miles south, traversing an important grain region. About half the line will be completed by the end of the year. Another line, also about 150 miles, will run from the Kuznets coal basin north to Kolchugino, through the coal districts of Prokopievsky and Kisilevsky, while south of Kuznets it will tap the rich iron district of Telbes. The spur between Kuznets and Telbes, about 50 miles, will be completed during 1926.

### Riding Third Class on the Trans-Siberian

Travel between Europe and Asia via the Trans-Siberian Railway has been very light under the Soviet regime in Russia and few western Europeans there are who will risk the journey. That it is, nevertheless, possible and, for some persons at least, safe is attested by a woman who traveled by this route from Peking to London recently and recounted her experiences in the Manchester Guardian. The Railway Gazette summarizes the essential details of her article in part as follows:

The journey took nineteen days, including three at Harbin, one night in Moscow, and two days in Berlin, and the total expenses, comprising fare, berth, food, visas, tips, cabs and hotel bills, were less than £30, and it was accomplished more quickly than by any other route. Everybody warned the intending voyager in Peking that it was impossible to travel third-class by the Trans-Siberian. Yet she arrived safely in London, unbitten by any vermin, untouched by any disease, and having, moreover, thoroughly enjoyed the journey; so much so that she states her intention of going the same way if she ever returns to China. The third-class was well arranged, each compartment containing six berths. The backs of the seats turned up by an exceedingly simple device and formed an upper berth. The compartments opened one into the other, and at the end of each car a guard slept. The cars were cleaned out twice daily, and at all the bigger stations local women came in and scrubbed the floors. Most of the passengers brought their own bedding, but clean mattresses and rugs could be hired for a small sum. Everything for daily use was kept on a large shelf running around the top of the car. At all the stops hot water could be obtained, and plenty of fresh milk and delicious food of all kinds from the peasants at rates much cheaper than in the restaurant car on the train. Although she knew no Russian, and many of her fellow passengers knew nothing else, the journey passed very pleasantly.

### Miscellaneous Notes

The following item has been reported to the Transportation Division of the Bureau of Foreign and Domestic Commerce by one of its agents.

The Colombian government will build a 10-mile railroad for the jetty work at the mouth of the Magdalena River, at a cost of about \$400,000, including rolling stock. Purchases of rails, rolling stock, etc., will be made by the Ministry of Public Works, Bogota, by open bidding.

## Equipment and Supplies

### Locomotives

THE GEORGIA RAILROAD has ordered 2 Mikado type locomotives from the Lima Locomotive Works.

THE PAULISTA DE ESTRADA DE FERRO (Brazil) has ordered 4 three-cylinder Pacific type locomotives from the Baldwin Locomotive Works.

THE CLARK & WILSON LUMBER COMPANY, Nehalem Junction, Ore., has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

THE MISSOURI PACIFIC is now inquiring for 10 Santa Fe type locomotives. The authorization for this equipment was reported in the *Railway Age* of October 10.

THE CENTRAL OF GEORGIA has ordered 5 Mountain type locomotives from the Baldwin Locomotive Works. The inquiry for this equipment was reported in the *Railway Age* of October 24.

THE BALTIMORE & OHIO has bought a 60-ton oil-electric locomotive for use in New York City, from the Ingersoll-Rand Company, the General Electric Company and the American Locomotive Company, which companies co-operate in its manufacture.

THE LEHIGH VALLEY has bought a 60-ton oil-electric locomotive for use in New York City, from the Ingersoll-Rand Company, the General Electric Company and the American Locomotive Company, which companies co-operate in its manufacture.

### Freight Cars

THE ATLANTA & WEST POINT is inquiring for 100 box cars of 50 tons' capacity.

THE NEW YORK CENTRAL is inquiring for 1,000 gondola cars of 55 tons' capacity.

THE CHICAGO, MILWAUKEE & ST. PAUL is inquiring for 2 well cars of 75 tons' capacity.

THE ST. LOUIS SOUTHWESTERN contemplates building 500 box cars of 40 tons' capacity in its own shops.

THE CHINESE GOVERNMENT RAILWAYS are inquiring through the car builders for 50 high side gondola cars of 44 tons' capacity.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 500 underframes from the Pullman Car & Manufacturing Corporation.

THE ILLINOIS CENTRAL has ordered 200 stock cars from the General American Car Company. Inquiry for this equipment was reported in the *Railway Age* of October 24.

THE SINCLAIR REFINING COMPANY has ordered 50 insulated tank cars of 10,000-gal. capacity from the General American Tank Car Corporation. The inquiry for this equipment was reported in the *Railway Age* of October 24.

### Passenger Cars

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for 4 dining cars.

THE ESTRADA DE FERRO PARACATU is inquiring through the car builders for 6 passenger cars.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for two combination baggage and mail cars.

THE MISSOURI PACIFIC has ordered 5 dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of October 17.

THE LONG ISLAND is inquiring for 20 steel suburban coaches, type P 54 E, for steam line service. In the *Railway Age* of



October 17, mention was made that this company contemplated going in the market soon for 20 steel coaches.

THE CHICAGO, SOUTH SHORE & SOUTH BEND has ordered two parlor cars and two dining cars from the Pullman Car & Manufacturing Corporation, in addition to the 15 combination smoking and passenger cars and 10 combination passenger, baggage and smoking cars, reported in the *Railway Age* of October 10.

## Iron and Steel

THE READING COMPANY is inquiring for 300 tons of steel for a bridge in eastern Pennsylvania.

THE CENTRAL OF NEW JERSEY has ordered 1,600 tons of steel for its Bayonne bridge from the American Bridge Company.

THE LOUISVILLE & NASHVILLE has ordered a turntable involving 100 tons of structural steel from the American Bridge Company.

THE MICHIGAN CENTRAL has ordered 680 tons of structural steel for a bridge at Detroit, Mich., from the American Bridge Company.

THE UNION PACIFIC has ordered 500 tons of structural steel for a viaduct at Omaha, Neb., from the McClintic-Marshall Company.

THE MISSOURI-KANSAS-TEXAS has ordered 260 tons of structural steel for car shops at Denison, Tex., from the Stupp Bros. Bridge & Iron Company.

## New York Central Places Orders

### for 206,745 Tons of Rail

THE NEW YORK CENTRAL LINES have placed orders for their rail requirements for 1926. The total tonnage purchased and optioned is 206,745 gross tons, orders for which have been assigned as follows:

	Tons
Bethlehem Steel Company .....	88,500
Illinois Steel Company .....	80,445
Carnegie Steel Company .....	18,800
Inland Steel Company .....	19,000
Total .....	206,745

Of this quantity 155,000 tons have been released for prompt shipment and the balance taken on option subject to future specifications. The order includes 127 lb. Dudley sections for 33,500 tons ordered and 10,500 tons on option; 115 lb. Dudley sections for 8,500 tons ordered and 2,400 tons on option; 105 lb. Dudley sections, 110,000 tons ordered and 38,845 tons on option; 90 lb. Dudley sections 3,000 tons ordered.

## Machinery and Tools

THE TEXAS & PACIFIC has ordered a 5-ft. radial drill from the Niles-Bement-Pond Company.

THE CHESAPEAKE & OHIO has ordered two ditchers from the American Hoist & Derrick Company.

THE MISSOURI-KANSAS-TEXAS has ordered a Putnam heavy axle lathe from Manning, Maxwell & Moore, Inc.

THE ILLINOIS CENTRAL has ordered a 62-in. vertical boring and turning mill from the Niles-Bement-Pond Company.

THE MCCLINTIC-MARSHALL CONSTRUCTION COMPANY has ordered two Baush multiple drills from Manning, Maxwell & Moore, Inc.

THE FLORIDA EAST COAST has ordered one heavy driving wheel lathe and a 96-in., 600-ton wheel press from the Niles-Bement-Pond Company.

## Miscellaneous

THE LOUISVILLE & NASHVILLE is inquiring for one 90-ft. turntable.

THE RUTLAND will receive bids until 12 o'clock noon, October 30, for 150,000 creosoted beech, birch and maple cross ties;

100,000 to be delivered before January 1, and the remainder between June 1 and August 1, 1926.

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, November 6, for the manufacture, delivery and erection of switchboard panels, etc., for use in circuit breaker houses at High Bridge, N. Y., and Morris Heights, as well as for use in circuit breaker houses on the Yonkers branch of the Putnam division.

## Signaling

THE ILLINOIS CENTRAL has ordered from the General Railway Signal Company an electric interlocking, 28 working levers, for 51st street, Chicago.

THE NEW YORK CENTRAL has ordered from the General Railway Signal Company, 30 switch machines for single switches and derails, model 5A, 110 volt.

THE LOUISVILLE & NASHVILLE has ordered from the General Railway Signal Company the materials for the automatic block signals which it is to install between Mobile and New Orleans, 139 miles, as announced in the *Railway Age* of October 3, page 634. The order includes 220 base-of-mast and 63 top-of-mast signals.

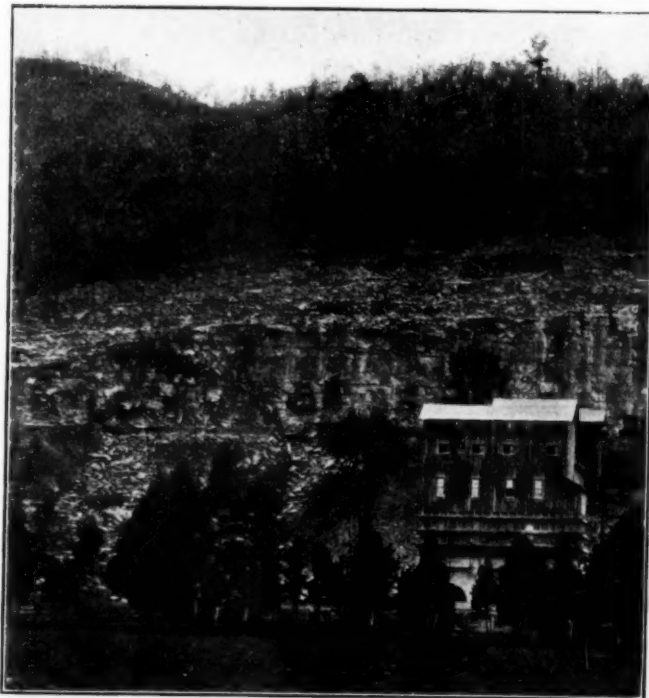
## Passenger Cars Ordered, Installed, Retired

Quarter	Domestic orders reported during quarter	No. installed during quarter	No. retired from service during quarter	No. owned or leased at end of quarter	No. under order or being constructed
Full Year, 1923...	2,214*	2,719	2,713	....	...
1924					
Jan-March .....	559	699	431	54,519	970
April-June .....	263	698	552	54,668	847
July-September ...	563	668	544	54,783	791
Oct.-December ...	338	759	849	54,787	651
Full year, 1924...	2,554*	2,824	2,376	....	...
1925					
Jan-March .....	279	609	589	54,594	773
April-June .....	160	690	644	54,658	498
July-September ...	408	...	...	...	...
Total for 6 mos...	...	1,299	...	...	...
Total for 9 mos...	847	...	...	...	...

(1) Details as to orders from *Railway Age* weekly reports. Figures include all domestic orders placed with builders and railroad shops.

(2) Figures in remaining columns from Car Service Division, A. R. A. quarterly report of passenger cars, Form C. S. 55 A. Figures cover only Class I roads reporting to Car Service Division and are not therefore strictly comparable with figures given in first two columns of table.

\*Corrected figures.



N. C. & St. L. Quarry at Cumberland, Ala., Where 69,350 Tons of Rock Were Dislodged Recently by Firing at One Time 14,700 lb. of Dynamite

## Supply Trade News

Charles B. Ashmead has been appointed sales representative of S. F. Bowser & Co., Inc., Ft. Wayne, Ind., with headquarters at Cleveland, O.

Grant W. Lillie has been appointed sales engineer of the Hubbard Steel Foundry Company, East Chicago, Ind., with headquarters at 1547 McCormick building, Chicago.

The Electric Service Supplies Company, Philadelphia, Pa., has removed its Chicago office from the Monadnock building to the Illinois Merchants Bank building, 230 S. Clark street.

Benjamin Bruce Shaw, formerly chief engineer of the Cuba railroad, has been appointed contracting engineer of the Roberts & Schaefer Company, Chicago. He was born on February 21, 1886, at Canton, Ill., and graduated from the University of Illinois in 1911 with the degree of Bachelor of Science of Railway Civil Engineering. In 1916 he returned to the University of Illinois and received the degree of Civil Engineer. He entered railway service in 1911 as a rodman on the Chicago, Rock Island & Pacific on the construction of a cut-off from Des Moines, Ia., to Alherton, then known as the St. Paul & Kansas City Short Line. Later he was promoted to assistant engineer in charge of construction. He was transferred to El Reno, Okla., as assistant engineer on maintenance work and a year later was promoted to division engineer of the Indian Territory division, with headquarters at Haileyville, Okla. In 1916 he was transferred to the Arkansas division, with headquarters at Little Rock, Ark., and when the Louisiana division was consolidated with the Arkansas division was made division engineer of the Arkansas-Louisiana division. In December, 1922, he was appointed chief engineer



Benjamin B. Shaw

of the Cuba railroad on the island of Cuba, which position he held until his recent appointment.

Sir Thomas O. Callender, managing director of Callender's Cable & Construction Company, Ltd., London, England, has arrived in this country on a visit after an absence of some years. In addition to inspecting some of the most recent of the power plants in this country, including those established by his friend, Samuel Insull of Chicago, he will inspect the recently established plant of the Okonite-Callender Cable Company, Inc., Paterson, N. J., in which his company is jointly interested with the Okonite Company. A photograph of Sir Thomas with a sketch of his career was published in the *Railway Age* of May 9, 1925.

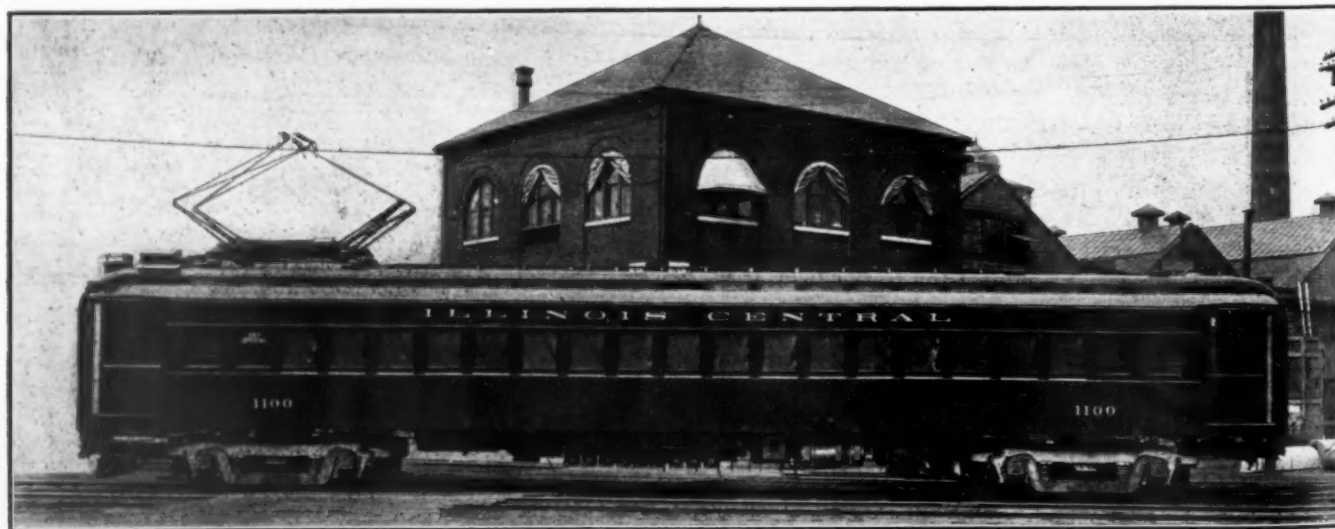
The business of Wadsworth, Howland & Co., Inc., paint and varnish manufacturers, Boston, Mass., has been transferred to Devoe & Reynolds Company, Inc., New York. President E. S. Phillips of Devoe & Reynolds becomes the new president of Wadsworth, Howland & Co., succeeding A. P. Felton, who is retiring both from the presidency and the board of directors. President Phillips announces that Wadsworth, Howland & Co. will be operated as a separate manufacturing and sales unit of the Devoe organization, and more capital has been added to the corporation to permit an expansion of facilities. The new board of directors is composed of E. S. Phillips, E. D. Peck, Renshaw Smith, Jr., E. S. Blackledge, A. C. Stephan, E. B. Prindle, G. E. Felton, F. H. Appleton and C. S. Robbins.

## Obituary

George E. Crisp, treasurer of The Superheater Company, died after a prolonged illness at his home in East Orange, N. J., on October 11. Mr. Crisp was born on February 16, 1870, and received his education at Albert Memorial College, London, England. He traveled extensively in the United States and Canada, and started railroad work on the Chicago & Great Western. Mr. Crisp had been associated with the Superheater Company for ten years. Prior to going with the company he had been associated with other railroad supply companies.

## Trade Publications

HYDRALT.—J. B. W. Gardner, Inc., New York, has issued a four-page pamphlet outlining the nature and characteristics of a new water-proofing material known as "hydralt." The description also outlines the manner of application and present claims for the protection afforded against the corrosive action of acids, brine drippings, locomotive gases, etc.



Electric Motor Car, Built for the Illinois Central by the Pullman Car Works for Suburban Service—Length Between Couplers, 72 ft. 2 in.; Seating Capacity, 84; Weight, About 125,000 lb.



## Railway Construction

**ATLANTA, BIRMINGHAM & ATLANTIC.**—This company will begin at once the rehabilitation of its water-front terminals at Brunswick, Ga., which have not been used by ships since the consolidation of terminals at that point under federal control. The basin will be dredged to dock at low tide ships drawing 30 ft. of water. Additional platforms, warehouses and tracks for the more economical and prompt handling of traffic.

**BALTIMORE & OHIO.**—Bids have been received for the construction of water treating plants at DeForest Junction, Ohio, and at Athens.

**CANADIAN PACIFIC.**—Plans have been prepared for the construction of an annex of 100 rooms to the company's hotel at Banff, Alta. Contract for the construction is reported to have been awarded to the Bennett & White Construction Co., Calgary, Alta.

**CHESAPEAKE & OHIO.**—Bids have been received for the construction of a pumping station at Stevens, Ky.

**CHICAGO & NORTH WESTERN.**—Bids have been received for the construction of an enginehouse at Aberdeen, S. D.

**CHICAGO, ROCK ISLAND & PACIFIC.**—A contract has been awarded to the T. S. Leake Construction Company, Chicago, for the construction of a 14-stall extension to the roundhouse at Silvis, Ill., to cost approximately \$75,000, as reported in the *Railway Age* of October 10.

**DETROIT CONNECTING.**—C. E. Boles, attorney-examiner, and E. Gray, engineer-examiner, of the Interstate Commerce Commission, have recommended to the commission a finding that public convenience and necessity do not require the construction of the proposed line from Delray to Marine City, Mich.

**GOLDEN BELT.**—The Kansas Public Service Commission has again refused to sanction the construction of a railway in central western Kansas from Great Bend to Hays, 52 miles, and its intention of later continuing to Phillipsburg, 50 miles further north. The latest refusal of permission was made on the grounds that the Interstate Commerce Commission has sole authority to act on the matter. As reported in the *Railway Age* of August 22, the Golden Belt was refused authority to build the line by the Interstate Commerce Commission as well as the Kansas Public Utilities Commission in 1922 and again in 1924.

**GRAND TRUNK WESTERN.**—Bids were received until October 27 for the construction of a 3-stall extension to the roundhouse at 47th street, Chicago.

**NEW YORK CENTRAL.**—Peter Witt, of Cleveland, Ohio, has filed a petition asking the Interstate Commerce Commission to require this company and the Cleveland, Cincinnati, Chicago & St. Louis to erect a joint passenger station in the vicinity of Madison avenue and West One Hundred and Seventeenth street, Cleveland, pending the completion of the union terminal.

**NEW YORK, CHICAGO & ST. LOUIS.**—Bids have been received for line changes in the vicinity of Sorento, Ill. The project involves realignment for a distance of approximately 2 miles to eliminate curves and will cost approximately \$175,000.

**NEW YORK, PITTSBURGH & CHICAGO.**—H. O. Evans, of counsel for this company, has filed with the Interstate Commerce Commission a brief of exceptions to the report proposed by Examiner Burnside recommending against the granting at this time of this company's application for a certificate authorizing the construction of the proposed line from Allegheny to Easton, Pa. The proposed report, he says, errs in holding that the existing railroads can continue in the future to handle the through traffic between New York and the West by expanding their facilities as required, and, after pointing out that \$750,000 has already been expended in preliminary expenses, surveys, etc., he says that Congress never intended the requirement of such a large expenditure in advance

of the granting of a certificate as would be required to carry out the suggestions of the report. "Having demonstrated," the brief concludes, "the inevitable need for new railway facilities, built in the next five years to meet the ever-rising tide of freight traffic and the pre-eminent superiority of the applicant road to fill that need, we earnestly submit that this application should be allowed as the best possible solution of a serious national problem." The brief also bears the name of Charles Evans Hughes as of counsel.

**NORTHERN PACIFIC.**—A general contract for the construction of a 50-mile branch line from Orofino, Idaho, into the Clearwater timber district of northern Idaho, has been awarded to Twohy Bros., Spokane, Wash. This project was reported in the *Railway Age* of September 26.

**OWENSBORO, ROCKPORT & CHICAGO.**—This company has applied to the Interstate Commerce Commission for a further hearing on its application for a certificate for the construction of a line from Owensboro, Ky., to Elnora, Ind., in order that it may present additional evidence to meet the objections made by the commission's examiners that recommended a denial of the certificate.

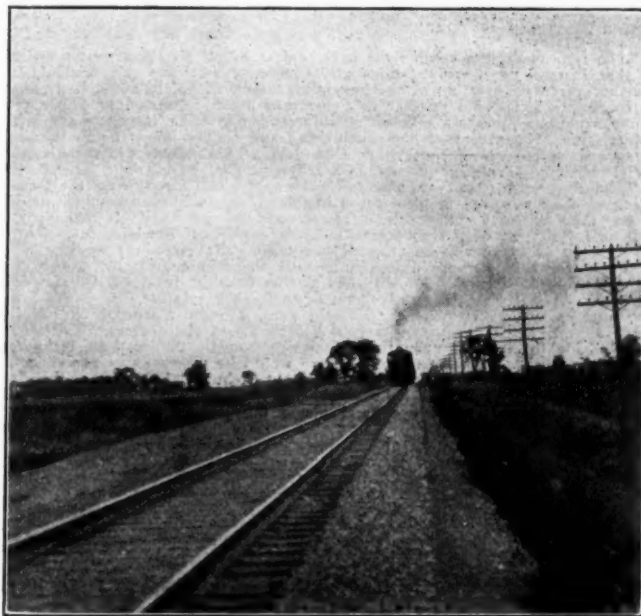
**PACIFIC GREAT EASTERN.**—Engineers representing the provincial government of British Columbia, after a survey, have estimated that rehabilitation of the road would cost approximately \$3,000,000. Most of this amount would be required for replacement work, particularly for the construction of new bridges. Relocation of the line in the vicinity of Fraser river is also recommended. Expenditure of the amount for rehabilitation of the road, which is owned and operated by the Province of British Columbia, will be considered at the next session of the provincial legislature, which opens on November 2.

**SOUTHERN.**—The office section of the freight station at East St. Louis, Ill., which was damaged by fire on October 19 with a loss estimated at \$75,000, is to be rebuilt.

**ST. LOUIS-SAN FRANCISCO.**—A contract has been awarded to J. H. Leveck & Sons, Little Rock, Ark., for the construction of a freight and passenger depot at Crystal City, Mo., to cost approximately \$20,000.

**UNION PACIFIC.**—The contract for the construction of a freight and passenger station at Bell, Cal., reported in the *Railway Age* of October 24, has been awarded to C. A. Poulson, Beverly Hills, Cal.

**WABASH.**—The contract for the construction of a roundhouse and machine shop at North Kansas City, Mo., reported in the *Railway Age* of September 5, was awarded to Carmichael & Cryder, Kansas City, Mo. The project will cost approximately \$100,000.



Between Smithville, Ont., and St. Anns on the T. H. & B.

## Railway Financial News

**ASTORIA, NORTH SHORE & WILLAPA HARBOR.—Proposed Operation of Line.**—The Interstate Commerce Commission has denied the application of this company to operate a line owned by the Oregon-Washington Railroad & Navigation Company, hereinafter called the Oregon Company, extending from Megler, Wash., to Nachotta, 27 miles, and from Ilwaco Junction, Wash., southerly to Ilwaco Dock, 1.1 miles. It proposed to operate the line under a five-year lease from the Oregon Company, with the option of renewal for another period of five years at an adjusted rental. The applicant was incorporated on November 12, 1924, with an authorized capital stock of \$100,000, of which \$50,000 is 6 per cent preferred stock and the remainder common.

**ATLANTA, BIRMINGHAM & ATLANTIC.—Rehabilitation.**—The receiver, B. L. Bugg, in announcing that the tidewater terminals at Brunswick, Ga., which have not been used by ships since federal control, will be rehabilitated says: "This is in line with our policy of providing facilities to take good care of all traffic we can secure. Our track and engines are adequately maintained. Under our rebuilding program which will be completed about January 1, we will rebuild and put in first class condition all bad order cars. By that date we will have about 1,100 more freight cars in service than on August 1."

**BANGOR & AROOSTOOK.—New Control.**—Control of approximately 40,000 of the 70,000 shares of common stock of the Bangor & Aroostook Railroad Company is reported to have passed to a group of Detroit business men whose names are not yet given. It was also reported that efforts are being made to obtain holdings of the preferred stock.

**CHICAGO, MILWAUKEE & ST. PAUL.—Battle of Statements.**—The opposing interests in the Chicago, Milwaukee & St. Paul receivership proceedings have during the past week engaged in a battle of statements arguing in favor or against, as the case may be, of Kuhn Loeb-National City reorganization plan or the newer plan proposed by the Roosevelt committee.

**Statements Favoring Kuhn Loeb-National City Plans.**—Frederick H. Ecker, Mortimer N. Buckner and Donald G. Geddes, chairmen of committees representing respectively bondholders, owners of preferred stock and owners of common stock, issued on October 25 statements asserting that the advantages to St. Paul security holders accruing from the Kuhn Loeb-National City reorganization plan, already declared operative, far outweigh those claimed for the Roosevelt plan.

Frederick H. Ecker, in the statement issued by the bondholders' committee, said in part:

"The Roosevelt plan retains the basic defect of all the Roosevelt proposals in that instead of providing, through an assessment upon the stockholders, for the present liquidation of the government debt of \$55,000,000, it proposes to continue \$50,000,000 of that debt (secured by \$75,000,000 of 5 per cent bonds ranking equally with the fixed interest bonds to be issued to the bondholders for 25 per cent of their holdings) and to lay upon the reorganized company the burden of liquidating that debt within fifteen years by annual serial payments averaging almost \$5,000,000 a year beginning four years hence.

"The Roosevelt plan makes no adequate provision for raising the money that would be required to meet these instalments. It is presumably intended to pay them out of earnings, since the estimates of the Roosevelt plan assume that as instalments of the government debt are paid off fixed interest charges of the new company will be reduced pro tanto. But earnings would not be available for this purpose unless and until the full cumulative 5 per cent interest, and beginning 1936 the cumulative sinking fund of  $\frac{1}{2}$  per cent per year, have been paid on the new adjustment bonds.

"In their letter approving the present plan, Messrs. Coverdale & Colpitts made an estimate of the average future earnings of the system which would be available for interest upon the adjustment bonds. Under these estimates, if the Roosevelt plan were adopted, there would be no earnings available for the retirement of the extended Government debt in 1929 when the first instalment of the extended debt would fall due, and the aggregate of the estimated excess earnings over and above the interest on the adjustment bonds to the end of 1934 (the latest date to which the engineers' estimates run) would be considerably short of the aggregate of the average of the instalments on the extended Government debt during that period.

"Whatever may be the value of estimates of earnings, it is perfectly clear that no reorganization can be predicated upon the use of earnings in excess of the engineers' estimates. Furthermore, it is doubtful if the stockholders could be induced to participate in the plan if practically all of the earnings for the next fifteen years are appropriated in advance to the retirement of the extended Government debt."

Mortimer N. Buckner, chairman of the preferred stockholders' committee and Donald G. Geddes, chairman of the common stockholders' committee, in their statement said that "the adoption of

the Roosevelt plan would be injurious to both classes of stock and disastrous to the common stock," and added that the plan "seems to suffer from the peculiar defect that it seriously injures the stockholders without conferring corresponding benefits on bondholders."

The statement also said:

"A fatal objection to the Roosevelt plan from the point of view of stockholders is that, as compared with the present plan, the Roosevelt plan increases the annual prior charges (fixed and contingent), which must be paid before more than 4 per cent can be paid on the preferred stock and before any dividend can be paid on the common stock, by at least \$1,769,872 for the first five years, and by at least \$2,347,249 after five years, or approximately 2 per cent on the entire issue of common stock."

**Statement of Roosevelt Committee.**—The intensity of the opposing views in the reorganization proceedings is indicated by the following statement published by the Roosevelt committee on October 28:

"Daily there are brought to our attention the efforts of the Kuhn, Loeb & Co.-National City Company reorganization managers to coerce Chicago, Milwaukee & St. Paul security holders to deposit under their plan. The managers and their committees continue to threaten that unless the securities are deposited by November 20, penalties will be enforced.

"Neither bond nor stock holders need be frightened by this threat. No court will permit a reorganization plan to be put through by force. No Interstate Commerce Commission will approve a plan thus put into operation.

"The security holders must be given a fair opportunity to choose between two conflicting plans. They must be permitted carefully to weigh the merits of the two plans now before them and choose the one more favorable to them. If a better plan than either should be proposed, let them adopt that.

"We believe we have decided the better plan. We are offering bond and stock holders a free choice and we intend to combat to the utmost limits any attempt to deprive them of this choice, either directly or indirectly, by the threat to exact penalties from those who wish to give careful consideration to the respective proposals. We assure the railway's security holders that we shall stand for and with them."

**New Stockholders' Committee.**—Announcement was made on Monday of the foundation of a new committee to represent the preferred and common stockholders in the Federal court and receivership proceedings at Chicago, and in the western rate case which committee is to be headed by Ernest Iselin, member of the banking firm of A. Iselin & Co. The other members of the committee include Howard Caswell Smith, Van Cantvoord Merle-Smith and Frederick Osborn. The committee has engaged William Church Osborn, of Osborn, Fleming & Whiteley, and Lessing Rosenthal, of Rosenthal, Hamill & Wormser, of Chicago, as counsel.

A statement issued by the new committee said:

"Two plans of reorganization have thus far been presented to the security holders of the St. Paul. We are in no way committed to either of these plans. Our object in the proposed intervention is solely to represent the interests of the stockholders, to prevent any precipitate action that may be injurious to them or that may foreclose them from sharing in a reorganization based upon the probable earning power and future development of the railroad property."

**Massachusetts Savings Banks Favor Roosevelt Plan.**—The Savings Banks Association of Massachusetts, numbering 110 separate institutions, has announced its unanimous approval of the Roosevelt plan. The following resolution was adopted:

"That the Savings Banks Association of Massachusetts indorses the formation of the Roosevelt Protective Bondholders Committee and recommend that members of the association deposit their junior St. Paul bonds with this committee."

**French Bondholders Committee.**—The French bondholders committee, of which Georges Casmeze is chairman, has retained as counsel Charles Loeb, an American attorney living in Paris who sailed for New York on Wednesday. Mr. Loeb is quoted as saying:

"If the Reorganization Committee does not modify its plan in respect to the European 4 per cent loan of 1910, due last June, application may be made through the United States courts for sale of the road or for an order restraining the reorganization managers from paying in full obligations of the road contracted subsequent to the 1910 loan.

"I shall make every effort and use every arm of the United States law to satisfy what I consider the just claims of the committee I represent, whose membership is composed chiefly of French investors."

**Hearings Before Court.**—At hearings before Federal Judge Wilkerson at Chicago on October 28, charges were made by Lessing Rosenthal, attorney representing the Roosevelt interests, that the Kuhn-Loeb reorganization plan was being "jammed down the throats" of the stockholders by "threats, coercion and intimidation" and that there has been "unseemly haste" in the proceedings. He also said:

"It is common knowledge that the Kuhn-Loeb group and the National City Bank had the financing of this railroad. As late as 1924 they put out a \$10,000,000 bond issue which is not worth one-half that now. Then they say it is time to put the road in the hands of receivers, forestall investigation; then, with all the directors representing the same interests, they say it must be taken out of receivership and they will give us a new financial structure.

"Mr. Byram publicly has advocated the Kuhn-Loeb plan. A receiver has



no business to do anything of the sort. This Kuhn-Loeb reorganization committee has sent out a circular letter saying that stockholders may deposit with them on or before November 20 without penalty, and after that date the committee will fix a penalty. They do not have a majority and they are trying to coerce and frighten people into coming with them.

"We are asking only a fair opportunity to combine and acquire the property and that no force be used to exclude others."

The Roosevelt plan, Mr. Rosenthal said, has the backing of \$23,640,000 of the St. Paul stock.

**DETROIT & IRONTON.—Acquisition.**—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Detroit, Toledo & Ironton and the Toledo-Detroit by issuing its stock to members of the Ford family in exchange for that of the D. T. & I., which owns the stock of the Toledo-Detroit and operates it. The application says the shares of the D. T. & I. have an estimated value of \$104.27. The new company has also applied for authority to issue \$12,308,800 of common stock and \$10,985,500 of first mortgage 5 per cent bonds and to assume outstanding bonds of the D. T. & I.

**FRANKFORT & CINCINNATI.—Abandonment.**—This company has applied to the Interstate Commerce Commission for a rehearing and a reversal of the decision in which the commission denied its application for authority to abandon its road. The application says it has made an unsuccessful effort to develop new traffic and that it is operating at a monthly deficit of \$3,000. The closing of a distillery cut off the road from one of its greatest sources of received and outgoing freight.

**HAMPTON & BRANCHVILLE.—Securities.**—This company has applied to the Interstate Commerce Commission for authority to issue \$100,000 of general mortgage 6 per cent bonds and \$100,000 of common stock for the purpose of constructing an extension from Smoaks to Cottageville, S. C., 23¼ miles.

**KENTUCKY & INDIANA TERMINAL.—Bonds Offered.**—Smith, Moore & Co., St. Louis, are offering \$250,000 first mortgage 4½ per cent bonds at 88¾ and interest, to yield about 5.20 per cent. The bonds are dated January 3, 1911, due January 3, 1961.

**MAINE CENTRAL.—Lease of Subsidiary Terminated.**—The Maine Central has given notice that its lease of the Belfast & Moosehead Lake, Burnham Junction, Maine, to Belfast, 33 miles, will be terminated at midnight January 1, 1926. It is expected that the operation of the property will be continued by its owners with office at Belfast. The Maine Central leased the Belfast & Moosehead Lake for 50 years from April 27, 1871, and on expiration of the lease on April 1, 1921, entered into an agreement whereby the lease was extended subject to termination by either party on six months' notice. The company has outstanding \$267,000 preferred stock and \$380,400 common stock, and majority control is held by the city of Belfast.

**MINNEAPOLIS & ST. LOUIS.—Receivers' Certificates.**—The receiver has applied to the Interstate Commerce Commission for authority to issue \$400,000 of 6 per cent receivers' certificates for the purpose of renewing maturing certificates.

**ST. LOUIS-SAN FRANCISCO.—Acquisition of Jonesboro, Lake City & Eastern.**—The Interstate Commerce Commission has approved the acquisition by the St. Louis-San Francisco of control of the Jonesboro, Lake City & Eastern by the purchase of capital stock and by lease. The commission's granting of authority with reference to the issuance of securities was noted in the *Railway Age* of October 24.

### Dividends Declared

Central R. R. of N. J.—2 per cent, quarterly, payable November 16 to holders of record November 5.  
Norfolk & Western—\$1, extra; \$1.75, quarterly, both payable December 19 to holders of record November 30.

### Trend of Railway Stock and Bond Prices

	Oct. 27	Last Week	Last Year
Average price of 20 representative railway stocks .....	89.06	88.92	70.50
Average price of 20 representative railway bonds .....	91.71	91.58	88.07

## Railway Officers

### Executive

**H. D. Pollard**, general manager of the Central of Georgia, with headquarters at Savannah, Ga., who has been elected vice-president and general manager, with the same head-



H. D. Pollard

quarters, was born on October 4, 1872, at Aylett, Va., and was educated at Aberdeen Academy, Va. He took a short course at the University of Virginia and entered railway service in 1892 as a rodman on construction work with the Baltimore & Ohio. In 1893 he was appointed assistant resident engineer of construction at Wellsville, Ohio, on the Ohio Southern (now a part of the Detroit, Toledo & Ironton) and from 1894 to 1898 he was assistant engineer maintenance of way on the Philadelphia division of the Baltimore & Ohio. The following year he served as transitman on the Central of Georgia, and in 1900 he was appointed resident engineer of construction, and subsequently served consecutively as supervisor of track, trainmaster, roadmaster; and from June, 1905, to 1910, as superintendent at Macon, Ga., on the same road. In 1911 he was appointed assistant superintendent of the Sorocabana Railway, Sao Paulo, Brazil, and later was inspector general of the Auxiliare Company at Santa Maria and Porto Alegre, Brazil. In 1913 he returned to the service of the Central of Georgia as valuation engineer and two years later was elected president of the Wrightsville & Tennille, with headquarters at Tennille, Ga. He was appointed assistant general manager of the Central of Georgia in 1918, and a short time later was promoted to general manager. Two years later he was appointed general superintendent, with headquarters at Savannah, Ga., and in February, 1924, was promoted to general manager, which position he was holding at the time of his recent election to vice-president and general manager.

### Financial, Legal and Accounting

**V. P. Turnburke**, statistician of the Great Northern, with headquarters at St. Paul, Minn., has been promoted to general auditor, with the same headquarters, succeeding A. B. Fisher. **J. U. Haley** has been appointed auditor of miscellaneous companies in addition to his duties as valuation accountant, with headquarters at St. Paul, succeeding **J. H. Kaufmann**, who has been appointed auditor of the insurance bureau, a newly created position. **W. M. Burn** has been appointed statistician in place of Mr. Turnburke.

### Traffic

**J. D. Mason** has been appointed general passenger agent of the Southern Pacific, with headquarters at El Paso, Tex., succeeding N. Kinell, transferred to San Francisco, Cal.

**J. J. McQueen**, general agent, passenger department, of the Missouri Pacific, with headquarters at Chicago, has been appointed also general agent, passenger department, of the Gulf Coast Lines and the International-Great Northern, with the same headquarters.

**J. F. Pewters**, general agent of the Great Northern, with headquarters at Spokane, Wash., has been promoted to assistant general freight and passenger agent, with headquarters at Helena, Mont., succeeding **L. B. Woods**, deceased. **J. S. Bock**, general agent, with headquarters at Great Falls, Mont., has been transferred to Spokane, Wash., in place of Mr. Pewters. **C. H. O'Hara**, traveling freight agent, with headquarters at Spokane, has been promoted to general agent at Great Falls, succeeding Mr. Bock.

**J. E. Weller**, at present assistant freight traffic manager of the Pennsylvania at Chicago, has become traffic manager of the Western region, succeeding **William Hodgdon**, who, on account of impaired health, has requested that his duties be lightened. Mr. Hodgdon has become assistant to the general traffic manager and will continue to have his headquarters at Chicago. **S. T. Stackpole**, division freight agent at Detroit, has been promoted to assistant general freight agent, with headquarters in that city, and **George A. Hill**, now division freight agent at Ft. Wayne, Ind., has been transferred to Detroit to succeed Mr. Stackpole, and to assist him in the general freight traffic work of the Detroit district. **W. B. Hopkins**, chief of the tariff bureau at Philadelphia, will succeed Mr. Hill as division freight agent at Ft. Wayne. **H. C. Clevenger**, coal freight agent at Pittsburgh, Pa., has been promoted to coal traffic manager, succeeding **J. C. Venning**, furloughed at his own request. **Carter H. Lippincott**, now chief clerk in the office of the coal and ore agent at Cleveland, has become coal freight agent at Pittsburgh, succeeding Mr. Clevenger. **E. S. Neilson**, foreign freight agent at Philadelphia, has been promoted to general foreign freight agent. Concurrently with this change, **A. B. Scott**, now district freight representative in New York City, has been promoted to foreign freight agent, but will continue to have his office in New York. **F. X. Quinn**, division freight agent in New York City, has been promoted to general freight agent, and **W. K. Emery**, now assistant foreign freight agent in New York City, has become general eastern freight agent. **A. E. Butin**, now passenger representative, has been promoted to division passenger agent at Grand Rapids, Mich., succeeding **M. F. Quaintance**, who is to retire under the pension regulations.

### Operating

**M. J. Parr**, who has been appointed superintendent of the Macon freight terminals of the Central of Georgia, was born on September 5, 1884, at Chesterland, Ohio, and was educated at Ohio State University. He entered railway service in June, 1904, on the Pennsylvania, lines West, and during the summers of 1904 and 1905, and from June, 1906, to March, 1907, was assistant on the engineering corps of the same road. On March 18, 1907, he entered the service of the Central of Georgia as a draftsman at Savannah, Ga., which position he held until March, 1909, when he became assistant engineer, with the same headquarters. In May, 1914, he was promoted to pilot engineer, and in May, 1915, to supervisor of bridges and buildings of the Columbus division at Columbus, Ga., which position he held until January 1, 1917, when he became roadmaster of the Macon division at Macon, Ga. From June 26, 1918, to June, 1919, he was a first lieutenant with the 48th Engineers (overseas August, 1918, to May, 1919). From June, 1919, to October, 1919, he was assistant trainmaster at Macon and Columbus, and on the latter date became trainmaster of the Southwestern division at Ma-



M. J. Parr

con, Ga., which position he was holding at the time of his recent appointment to superintendent of the Macon freight terminals.

### Traffic

**Fred Wild**, chief traffic officer of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has retired from active charge of the traffic department but will continue with the company in an advisory capacity with the title of special traffic representative and, at his request, assignment to special duties in connection with freight traffic. The office of chief traffic officer has been abolished and the freight and traffic departments will be under the respective jurisdiction of **George Williams**, freight traffic manager, and **F. A. Wadleigh**, passenger traffic manager, both with headquarters at Denver. Mr. Wild was educated at Williams College and was first employed in a clerical capacity on the Chicago, Milwaukee & St. Paul and on the Wabash. He was later appointed general freight agent of the Des Moines & Northwestern, now a part of the Chicago, Milwaukee & St. Paul, and still later was appointed assistant general freight agent of the Union Pacific. Mr. Wild was appointed general freight agent of the Denver & Rio Grande in August, 1899, and held that position until May, 1907, when he was promoted to freight traffic manager. Under federal control he was in the service of the United States Railroad Administration at Denver, being reappointed freight traffic manager of the Denver & Rio Grande on March 1, 1920. On August 1, 1921, Mr. Wild was appointed vice-president in charge of traffic of the Denver & Rio Grande Western, the successor of the Denver & Rio Grande. He was later appointed traffic manager and held that position until his retirement.

### Obituary

**J. W. Reynolds**, who retired 19 years ago as superintendent and general agent of the Western division of the Philadelphia & Erie branch of the Pennsylvania, after having completed 53 years of service, died on October 24, at Erie, Pa. Mr. Reynolds has been a resident of Erie since 1857. He was born in Evansburg, Montgomery county, Pa., on July 3, 1836.

**Frank R. McFeatters**, general superintendent of the Union, (Pittsburgh, Pa.,) died at his home in Wilkesburg, Pa., on October 25, following a long illness. Mr. McFeatters was born in Brush Valley, Pa., in 1855, and began his railway career in 1873 as a brakeman on the Pennsylvania, at Pittsburgh, Pa. He later went to the Pittsburgh & Lake Erie, serving as brakeman, conductor and trainmaster. In 1896, he was appointed superintendent of the Union and in 1917 became general superintendent in full charge of operation, which position he was holding at the time of his death.



Denver & Salt Lake Train Approaching Highest Point Reached by a Standard Gage Railroad in America